



Strengthening infection prevention and control in primary care

A collection of existing
standards, measurement
and implementation resources

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Overall coordination, writing and design of the document

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ABBREVIATIONS AND ACRONYMS

ABHR	alcohol-based handrub
AMR	antimicrobial resistance
COVID-19	coronavirus disease 2019
HAI	health care-associated infection
HCW	health care worker
HHSAF	hand hygiene self-assessment framework
IPC	infection prevention and control
IPCAF	infection prevention and control assessment framework
IPCAF-MR	infection prevention and control assessment framework - minimum requirements
PPE	personal protective equipment
SMART	specific, measurable, achievable, realistic and time-bound (objectives)
SOP	standard operating procedures
UNICEF	United Nations Children's Fund
USA	United States of America
USA-CDC	USA-Centers for Disease Control and Prevention
WASH	water, sanitation and hygiene
WASH FIT	water, sanitation and hygiene facility improvement tool
WHO	World Health Organization



1

Introduction

Effective infection prevention and control (IPC) supports the delivery of high quality, safe primary care and spans many of the operational levers described within the recently published [Operational framework for primary health care: transforming vision into action](#) issued by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) (1), including the physical infrastructure and systems for enabling quality of care.

This operational framework highlights the **need for effective IPC measures and water, sanitation and hygiene (WASH)** in health care facilities as foundational components of **quality care** and calls for the establishment of national standards for IPC and a prioritization at the operational level.

However, the seminal IPC guidelines ([WHO Core components for IPC programmes](#)) and associated implementation resources referred to within the primary health care operational framework were predominantly developed in relation to acute health care facilities (2).

Although the principles of IPC transcend all levels of the health sector, there is an increasing acknowledgement that primary care does warrant tailored approaches to IPC guidance and implementation strategies. The COVID-19 pandemic has further reinforced this. This document and the associated '**Toolbox**' are based on existing WHO IPC guidance, standards and tools with a direct relevance for primary care. WHO is also working with partners to develop additional new evidence- and experience-based resources for primary care settings, including guidelines and implementation strategies.

1.1 Purpose of this document

This document aims to support those working in primary care to strengthen IPC, informed by existing WHO IPC guidance and implementation resources.

Note, many of the existing WHO IPC guidance and implementation resources initially developed for acute health care facilities have a potential utility for IPC in primary care. However, navigating these resources to **locate relevant content for IPC in primary care** can be challenging as some documents can span over 100 pages. **This document extracts relevant content, bringing together existing WHO IPC standards, indicators and implementation approaches that are focused on, or directly relevant to IPC in primary care.** It should also be used to identify resources suitable for use in primary care that can be embedded within relevant IPC or other health programmes.

1.2 Structure

The document is in two parts.

Part. A

Standards and measurement for infection prevention and control in primary care

Content is extracted from the [Minimum requirements for IPC programmes](#) (3) and includes relevant indicators and resources.

Part. B

Implementation resources for infection prevention and control in primary care, with a focus on hand hygiene improvement

- Part B is a collection of implementation approaches with a focus on hand hygiene and associated resource considerations.
- Content is extracted from three existing WHO documents:
 - a. [Improving IPC at the health facility: Interim practical manual supporting implementation of the WHO Guidelines on core components of IPC programmes](#) (4);
 - b. [Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the 'My five moments for hand hygiene' approach](#) (5), and
 - c. [Resource considerations for investing in hand hygiene improvement in health care facilities](#) (6).

1.3 Target audiences

The primary target audience of this document are:

- **IPC focal points and professionals**
- **policymakers**
- **senior managers and**
- **other professionals* with the mandate of or interested in developing or strengthening IPC programmes at the primary care level**

*For example, those responsible for health care quality improvement, patient safety, health care facility accreditation/regulation, public health, infectious disease control and surveillance, including antimicrobial resistance (AMR) prevention and antimicrobial stewardship programmes, water, sanitation and hygiene (WASH), occupational health, clinical microbiology and environmental health interventions).

- Others involved in primary care delivery may also find it useful. These include professionals working at the administrative level that coordinates and monitors health service delivery in primary care facilities e.g. primary care management. Across this document, this level is referred to as the "next administrative level", which may comprise a district or province health system, that is, a network of primary care facilities or an integrated health service delivery network, and will likely differ according to a country health system. These terms are expanded upon within the glossary.
- WHO staff, partners in nongovernmental organizations, and donors involved in supporting the development or implementation of IPC and WASH capacity building, AMR and patient safety national action plans, and the core capacities of the International Health Regulations at country level, will also benefit from using this document.

Of note, IPC implementation at the point of care is the responsibility of all health care workers (HCWs) and not the sole responsibility of the IPC professionals or policy-makers. Therefore, it is important that all HCWs are capacitated in IPC and understand the IPC *minimum requirements*, based on their different areas of work and functions (for example, through pre-service training, updates within annual in-service training, etc.).

1.4 Interlinkage with efforts and resources to improve the quality of health services

IPC is an essential component of efforts to enhance quality of health services. Launched in 2020, the [WHO Quality health services: a planning guide](#) (7) focuses on such efforts and outlines actions required across all levels of the health system (that is, national, district and facility) to achieve high quality health services. It is intended for staff and all stakeholders, initiating and supporting action at facility, district and/or national levels, both in the public and private sectors. The guide builds on many of the resources presented in this document and will be a useful 'sister resource' for the target audience described above.

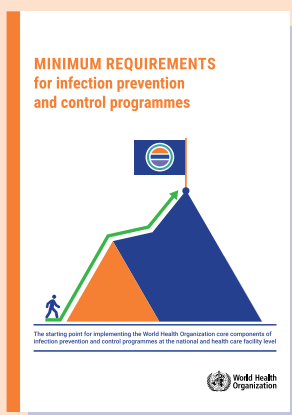


2

Part A. Infection prevention and control in primary care: standards and measurement

2.1 Introduction to the *minimum requirements* for infection prevention and control (IPC) programmes and associated measurement tools and indicators

Summary



- IPC programmes should be a strong part of health systems at all levels. Part A presents the *minimum requirements* for primary care facilities, extracted from the existing *minimum requirements* document (referred to as the source document).
- There is a wealth of existing WHO guidance on which the *minimum requirements* are based and these are described in Part A, to provide those working in primary care with the background evidence.
- The *minimum requirements* for primary care represents the starting point for undertaking the journey to build strong and effective IPC programmes. These *minimum requirements* should be in place in all countries and health care facilities to support further progress towards full implementation of all recommendations on the WHO core components of IPC programmes.
- Several WHO tools are available and have been used in countries to assess the level of progress of IPC programmes at the national and facility level. In addition, two additional tools have been derived for the assessment of the *minimum requirements* for IPC programmes at the national and facility level (8, 9). The latter is specifically referred to in Part A and concerns relevant IPC indicators for primary care facilities.

Structure of Part A

To introduce the *minimum requirements* for primary care, an **at-a-glance summary** of each minimum requirement is presented in tabular form by each core component, followed by an in-depth review and exploration of each core component and its minimum requirement for primary care, focused on the **what, who, how and why** (summarized in Box 2.1).

The IPC *minimum requirements* by core component for the national and secondary and tertiary care levels can be found in the main *minimum requirements* document.

The *minimum requirements* for IPC programmes manual contains an introductory section that presents the rationale for the necessity to have a strong IPC programme and structure in health systems. It also describes their purpose and outlines the extensive development process required.

An executive summary of the *minimum requirements* at the national level and at the other two levels of the health system (secondary and tertiary care), in addition to the primary level that is the focus of this document, is available in the *minimum requirements* document (3) and may be of value in considering a comprehensive health system perspective.

Box 2.1 Summary of *minimum requirements* for primary care, focused on the *what, who, how and why*.

BOX 2.1			
WHAT	WHO	HOW	WHY
<i>Minimum requirements</i>	<i>Is responsible for action</i>	<i>To measure progress</i>	<i>Rationale and additional details on the minimum requirements</i>
Text of the <i>minimum requirements</i> for each IPC core component identified by expert consensus according to national and health care facility level and based on existing IPC and WASH recommendations and standards.	Identification of those who have the mandate to ensure that the <i>minimum requirements</i> are put in place and sustained or can play a role.	Indicators to be used to track implementation and progress for each <i>minimum requirement</i> are available from different WHO monitoring tools.	Explanations about the reasons for selecting the agreed <i>minimum requirements</i> (rationale) and additional details explaining their content and importance.

The minimum requirements for IPC programmes are defined as:

IPC standards that should be in place at the national and facility level to provide minimum protection and safety to patients, HCWs and visitors, based on the WHO core components for IPC programmes (2).

The implementation of all WHO recommendations on core components (2) (Fig. 2.1) is considered to be the 'gold' standard and it is ultimately required to build functioning programmes leading to the effective and sustained reduction of health care-associated infections (HAIs) and antimicrobial resistance (AMR), including in the context of national action plans for AMR, patient safety, quality of care and health security.

However, fulfilment of all IPC core components takes time and it is recognized that countries may be at different levels of progress, with different capacities, available opportunities and resources. For some countries, it may be a demanding journey that will need to build upon a realistic, stepwise approach. In particular for countries where IPC is limited or inexistent, it is critical to start by ensuring that at least [minimum requirements](#) for IPC (3) are in place as soon as possible, both at the national and facility level,

and to gradually progress to the full achievement of all requirements of the IPC core components according to local priority plans. Thus, the *minimum requirements* represent the starting point for undertaking the journey to build strong and effective IPC programmes at the national and facility level (Fig. 2.2) and **should** be in place in all countries and health care facilities to support further progress towards full and sustained implementation of all core components.

Fig. 2.1. Visual representation of the WHO core components of IPC programmes.

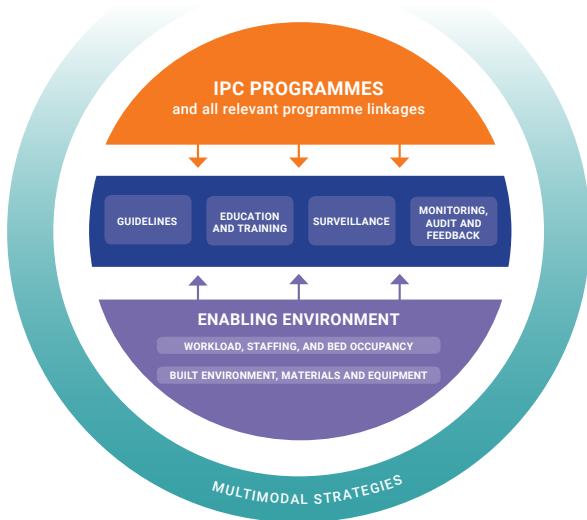
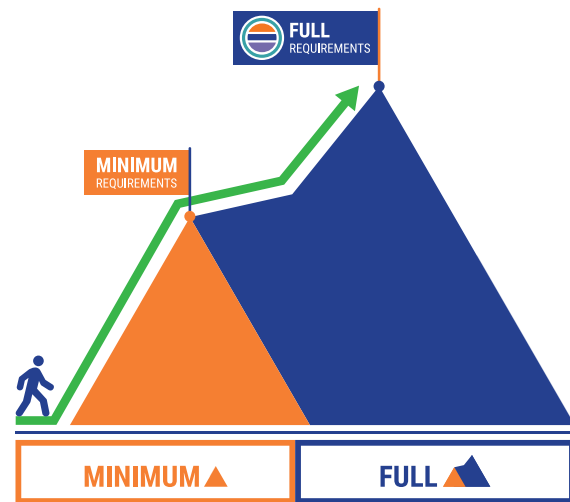


Fig. 2.2. Minimum versus full requirements to achieve effective IPC programmes.



Whether applying the *minimum requirements* or full requirements (2, 3), the implementation of the IPC core components should always be tackled using a stepwise approach, based on a careful assessment of the status of the IPC programme and activities locally. A country or a health care facility may not be able to aim at putting in place all core components or even all *minimum requirements* at the same time. Therefore, when preparing to improve IPC, it is essential to start by using standardized tools and indicators (8-12) developed and validated for assessing the status of the core components at the national or health care facility in any country worldwide, regardless of the geographical location and level of income. Depending on the strengths (core component requirements/features already in place) and the gaps (requirements/features not available or in place) identified through the assessment, a prioritization exercise can then help to identify which core components and minimum or full requirements need to be targeted through an improvement action plan tailored to the local context, expertise and resources available. To undertake this process, WHO proposes a 5-step cycle of implementation to support any IPC improvement intervention or programme (see Part B).

2.1.1 At-a-glance summary of the *minimum requirements* for primary care by each core component

The tables below present an at-a-glance summary of each minimum requirement for primary care, by core component.

An executive summary of the *minimum requirements* at each of the three levels of the health system (primary, secondary and tertiary) is available in the source document and may be of value for health professionals at the primary care level when considering the comprehensive health system perspective.

CORE COMPONENTS

PRIMARY CARE MINIMUM REQUIREMENTS

CORE COMPONENT 1. IPC PROGRAMMES

IPC trained health care officer

- Trained IPC link person, with dedicated (part-) time in each primary health care facility.
- One IPC-trained health care officer at the next administrative level (for example, district) to supervise the IPC link professionals in primary health care facilities.

CORE COMPONENT 2. IPC GUIDELINES

Facility-adapted standard operating procedures (SOPs) and their monitoring

- Evidence-based facility-adapted SOPs based on the national IPC guidelines.
- At a minimum, the facility SOPs should include:
 - hand hygiene
 - decontamination of medical devices and patient care equipment
 - environmental cleaning
 - health care waste management
 - injection safety
 - HCW protection (for example, post- exposure prophylaxis, vaccinations)
 - aseptic techniques
 - triage of infectious patients
 - basic principles of standard and transmission-based precautions.
- Routine monitoring of the implementation of at least some of the IPC guidelines/ SOPs.

Note: Additional SOPs for consideration might address: a) identification and separation of HCWs with infectious diseases, and b) the need for adequate ventilation in a facility.

CORE COMPONENT 3. IPC EDUCATION & TRAINING

IPC training for all front-line clinical staff and cleaners upon hiring

- All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment.
- All IPC link persons in primary care facilities and IPC officers at the district level (or other administrative level) need to receive specific IPC training.

CORE COMPONENT 4. HAI SURVEILLANCE

- **HAI surveillance is not required as a minimum requirement at the primary facility level**, but should follow national or sub-national plans, if available (for example, detection and reporting of outbreaks affecting the community is usually included in national plans).

CORE COMPONENT 5. MULTIMODAL STRATEGIES

Multimodal strategies for priority IPC interventions

- Use of multimodal strategies – at the very least to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments, devices and environmental cleaning.

CORE COMPONENT 6. MONITORING AND FEEDBACK

Monitoring IPC structural and process indicators

- Monitoring of IPC structural and process indicators should be put in place at primary care level, based on IPC priorities identified in the other components. This requires decisions at the national level and implementation support at the sub-national level.

CORE COMPONENT 7. WORKLOAD STAFFING & BED OCCUPANCY

- **To reduce overcrowding:**
a system for patient flow, a triage system (including referral system) and a system for the management of consultations should be established according to existing guidelines, if available.
- **To optimize staffing levels:**
assessment of appropriate staffing levels, depending on the categories identified when using WHO/ national tools (national norms on patient/staff ratio), and development of an appropriate plan.

CORE COMPONENT 8. BUILT ENVIRONMENT, MATERIALS & EQUIPMENT FOR IPC

- Water should always be available from a source on the premises (such as a deep borehole or a treated, safely managed piped water supply) to perform basic IPC measures, including hand hygiene, environmental cleaning, laundry, decontamination of medical devices and health care waste management according to national guidelines.
- A minimum of two functional, improved sanitation facilities should be available on-site, one for patients and the other for staff; both should be equipped with menstrual hygiene facilities.
- Functional hand hygiene facilities should always be available at points of care/toilets and include soap, water and single-use towels (or if unavailable, clean reusable towels) or alcohol-based handrub (ABHR) at points of care and soap, water and single-use towels (or if unavailable, clean reusable towels) within 5 metres of toilets.
- Sufficient and appropriately labelled bins to allow for health care waste segregation should be available and used (less than 5 metres from point of generation); waste should be treated and disposed of safely via autoclaving, high temperature incineration, and/or buried in a lined, protected pit.
- The facility layout should allow adequate natural ventilation, decontamination of reusable medical devices, triage and space for temporary cohorting/isolation/physical separation if necessary.
- Sufficient and appropriate IPC supplies and equipment (for example, mops, detergent, disinfectant, personal protective equipment (PPE) and sterilization) and power/energy (for example, fuel) should be available for performing all basic IPC measures according to *minimum requirements/SOPs*, including all standard precautions, as applicable; lighting should be available during working hours for providing care.

2.1.2 Minimum requirements at the primary care facility level: what, who, how and why

CORE COMPONENT 1 IPC PROGRAMME

IPC trained health care officer

- Trained IPC link person, with dedicated (part-) time in each primary health care facility.
- One IPC-trained health care officer at the next administrative level (for example, district) to supervise the IPC link professionals in primary health care facilities.

WHAT (*minimum requirements*)

- **IPC-trained link person and health care officer**
 - Trained IPC link person, with dedicated (part-) time in each primary health care facility.
 - One IPC-trained health care officer at the next administrative level (for example, district) to supervise the IPC link professionals in primary care facilities.

WHO (*is responsible for action*)

- The minister of health or other assigned senior authority within the ministry of health (for example, director-general of health services) at national and/or state level can influence and/or mandate, and finance the establishment and sustainment of an IPC structure at the primary care level, **that is, at a minimum, IPC link persons in primary care facilities and IPC officers at the next administrative level**. Supporting additional IPC professionals and IPC committees would also be beneficial to establish IPC programmes more effectively.
- The minister of finance may also have an important role in allocating a dedicated budget for IPC across primary care.
- Directors of health or health management teams (or other decision-making roles) at the district or province or state level (or other administrative levels, depending on the country).
- Leads of other programmes where links can be useful for synergistic action (for example, health emergencies, patient safety, AMR, WASH).
- IPC technical partners have an important role in advocating for and supporting (also financially in some cases) the establishment of the IPC structure and roles (for example, WHO country office, UNICEF, public health institutes or national centres for disease control and prevention, as well as other national and international organizations with competence and activities in the field of IPC).
- IPC committee (or similar) at the facility or next administrative level (if existing).
- Local partners have an important role in advocating for and supporting (also financially in some cases) the establishment of IPC *minimum requirements* at the facility level.

HOW (*to measure progress*)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- A trained IPC link person, with dedicated time is available in each primary care facility.
- IPC interventions (also refer to *minimum requirements* for all other core components) included in the facility annual plan.
- A trained IPC health care officer is available at the next administrative level (for example, district) to supervise the IPC link professionals.

WHY (rationale and additional details on *minimum requirements*)

- The primary health care level is the first main point of entry of infectious pathogens to the health system and also where IPC is usually weakest.
- Furthermore, HAIs and AMR acquired in primary care facilities or by patients in tertiary and secondary care facilities can spread to the community through patients and HCWs who access the primary care facility.
- It is critical to establish at least a basic level of IPC and triage in primary care (that is, *minimum requirements*) to avoid infection and AMR spread through the health system, including health care-associated outbreaks caused by human-to-human transmission of emerging or re-emerging pathogens.
- It is important to have professionals in charge of IPC at different levels (at the primary care facility and the next administrative level, such as the district or province level) to support a programmatic approach based on coordination, supervision and accountability through monitoring and evaluation.
- The existence of an IPC plan and practices at the primary care level will contribute to patient safety and quality of care and facilitate linkages to the community and dissemination of basic prevention principles among families, as well as patient and family engagement.
- The link person should be a staff member at the primary care facility level, trained in IPC and with dedicated time (part-time).
- In facilities with more than 10 HCWs, the IPC link person should be in charge of the following functions: advising on procurement and maintenance of equipment and consumables for IPC; monitoring and supervising IPC activities; liaising with the relevant next administrative level IPC coordinators on the implementation of IPC activities; liaising with the regular disease notification system for the reporting of unusual events.
- In facilities with less than 10 HCWs, the link person could have some of the above-mentioned functions but, overall, more support from the district officer will be needed, especially for monitoring activities.

TOOLS AND RESOURCES

- Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- *Minimum requirements* for infection prevention and control. Geneva: World Health Organization; 2019; <https://apps.who.int/iris/handle/10665/330080>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- Twinning partnerships for improvement. Geneva: World Health Organization; 2016; <https://apps.who.int/iris/handle/10665/206542>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.

CORE COMPONENT 2 IPC GUIDELINES

Facility-adapted standard operating procedures (SOPs) and their monitoring

- Evidence-based facility-adapted SOPs based on the national IPC guidelines.
- At a minimum, the facility SOPs should include:
 - hand hygiene
 - decontamination of medical devices and patient care equipment
 - environmental cleaning
 - health care waste management
 - injection safety
 - HCW protection (for example, post-exposure prophylaxis, vaccinations)
 - aseptic techniques
 - triage of infectious patients
 - basic principles of standard and transmission-based precautions.
- Routine monitoring of the implementation of at least some of the IPC guidelines/ SOPs.

Note: Additional SOPs for consideration might address: a) identification and separation of HCWs with infectious diseases, and b) the need for adequate ventilation in a facility.

WHAT (minimum requirements)

Facility-adapted SOPs and their monitoring

- Evidence-based facility-adapted SOPs based on national IPC guidelines.
- At a minimum, the facility SOPs should include:
 - hand hygiene
 - decontamination of medical devices and patient care equipment
 - environmental cleaning
 - health care waste management
 - injection safety
 - HCW protection (for example, at least post-exposure prophylaxis, vaccinations)
 - aseptic techniques
 - triage of infectious patients
 - all basic principles of standard precautions
 - basic principles of transmission-based precautions
- Routine monitoring of the implementation of at least some of the IPC guidelines/SOPs.

WHO (is responsible for action)

- Trained IPC link person, with dedicated (part-) time and/or support from an appointed IPC person at the next administrative level.
- If the expertise at the facility and next administrative level is limited, external support should be sought

¹ Transmission-based precautions are to be used in addition to standard precautions for patients who may be infected or colonized with certain infectious agents for which additional precautions are needed to prevent infection transmission. They are based on the routes of transmission of specific pathogens (for example, contact versus droplets). More information can be found in the United States Centers for Disease Control and Prevention Guidelines for Isolation Precautions (<https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>, accessed 23 August 2021).

² Includes aspects of improving working conditions, detection of occupational diseases, health surveillance of workers, pre-employment screening and vaccinations.

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- Availability of SOPs/guidelines consistent with national/international IPC guidelines (if they exist) for all standard precautions and basic principles of transmission-based precautions¹, in particular hand hygiene, decontamination of medical devices and patient care equipment, HCW protection², environmental cleaning and disinfection, health care waste management, injection safety, aseptic techniques, triage. Regular monitoring of the implementation of at least some of the IPC SOPs/guidelines performed in the facility.

WHY (rationale and additional details on minimum requirements)

- At the primary care facility level, it is critical important to develop SOPs for the implementation and monitoring of available national/international guidelines.
- IPC link professionals at the primary care facility level should work with the IPC focal points at the next administrative level (for example, district) to develop adapted SOPs based on the national (or international) guidelines for primary care.
- Monitoring adherence to SOP implementation is essential to evaluate its adoption and effectiveness to achieve the desired outcomes and to assist with adjustments and improvements of implementation strategies. IPC monitoring and supervision should be assured by the health care officer in charge of IPC at the next administrative level (for example, district).
- Adaptation to local conditions should be considered for the most effective uptake and implementation

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- (United States) Centers for Disease Control and Prevention IPC guidelines library; <https://www.cdc.gov/infectioncontrol/guidelines/index.html>.
- Association for Professionals in Infection Control: list of IPC guidelines; <https://apic.org/Professional-Practice/Scientific-guidelines>.
- Asia Pacific Society for Infection Control IPC guidelines; <http://apsic-apac.org/guidelines-and-resources/apsic-guidelines/>.
- Infection prevention and control assessment framework-*minimum requirements* (IPCAF-MR). Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Primary Health Care Performance Initiative. Primary health care progression model assessment tool report (where available). 2018; <https://improvingphc.org/primary-health-care-progression-model>.
- Aide-memoire: environmental cleaning, waste and linen management. In: Infection prevention and control: guidance to action tools. Copenhagen: WHO Regional Office for Europe; 2021; <https://apps.who.int/iris/handle/10665/341416>.
- Aide-memoire: personal protective equipment. In: Infection prevention and control: guidance to action tools. Copenhagen: WHO Regional Office for Europe; 2021; <https://apps.who.int/iris/handle/10665/341417>.
- Aide-memoire: respiratory and hand hygiene. In: Infection prevention and control: guidance to action tools. Copenhagen: WHO Regional Office for Europe; 2021; <https://apps.who.int/iris/handle/10665/341418>.

CORE COMPONENT 3 IPC EDUCATION AND TRAINING

IPC training for all front-line clinical staff and cleaners upon hiring

- All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment.

All IPC link persons in primary care facilities and IPC officers at the district level (or other administrative level) need to receive specific IPC training.

WHAT (minimum requirements)

IPC training for all front-line clinical staff and cleaners upon hiring

- All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment.
- All IPC link persons in primary care facilities and IPC officers at the district level (or other administrative level) need to receive specific IPC training.

WHO (is responsible for action)

- Trained IPC officer at the next administrative level (for example, district) is responsible for training IPC link persons, front-line HCWs and cleaners in primary care facilities, according to a plan and strategy developed at the national level.
- IPC officers at the next administrative level (for example, district) should be trained by the national or sub-national level.
- IPC expertise is required to lead IPC training.
- If the expertise at the next administrative level is limited, external support should be sought.
- IPC link persons should provide on-the-job supervision/mentorship to HCWs and cleaners in their facility.

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- All new front-line HCWs receive orientation education and training on IPC guidelines/SOPs.
- All new cleaning staff receive orientation education and training on IPC guidelines/SOPs.
- Specific IPC training/education is offered for IPC link professionals in primary care facilities.
- Specific IPC training/education is offered for IPC focal points at the district level.

WHY (rationale and additional details on minimum requirements)

- IPC education and training are critical to developing a competent and skilled workforce. At a minimum, an emphasis on a basic level of IPC and triage in primary care to avoid infection and AMR spread through the health system, including health care-associated outbreaks.
- Basic concepts of the implementation of multimodal strategies should be included in the training of IPC link professionals and IPC staff.
- Ensuring an orientation upon employment will provide a baseline knowledge to all front-line staff and cleaners, while recognizing that ongoing educational opportunities are the gold standard.

- Patient and visitor education remains an important consideration. In particular, whenever family members assume care activities, they should receive tailored IPC training in order to protect themselves and their loved ones and thus minimize any possibility of cross- transmission. Patient and family education at the facility level can also stimulate the use of appropriate hygiene measures in the community, such as handwashing with soap and water or hand rubbing with an alcohol based hand rub.

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Water, sanitation and health facility improvement tool (WASH FIT). Geneva: World Health Organization/ UNICEF; 2017; <https://apps.who.int/iris/handle/10665/254910>.
- Improving infection prevention and control at the health facility; Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.

CORE COMPONENT 4 HAI SURVEILLANCE

HAI surveillance is not required as a minimum requirement at the primary facility level, but should follow national or sub-national plans, if available (for example, detection and reporting of outbreaks affecting the community is usually included in national plans).

WHAT (*minimum requirements*)

- HAI surveillance is not required as a minimum requirement at the primary facility level, but should follow national or sub-national plans, if available (for example, detection and reporting of outbreaks affecting the community or surveillance of infection in HCWs are usually included in national plans).

WHO (is responsible for action)

- If HAI surveillance is conducted, a trained IPC link person/focal point, according to national or sub-national plans.

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- HAI surveillance is not a minimum requirement at primary care level. If conducted, HAI surveillance should be undertaken in accordance with national plans.

WHY (*rationale and additional details on minimum requirements*)

- The primary health care level is the first main point of entry of infectious pathogens to the health system and where IPC is usually weakest.
- Furthermore, HAIs and AMR acquired in primary care facilities or by patients in tertiary and secondary care facilities can spread to the community through patients and HCWs who access the primary health facility.
- The detection and reporting of HAIs, as well as outbreaks affecting the community or the surveillance of infection in HCWs, should be included in national or sub-national plans.

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization 2018; <https://apps.who.int/iris/handle/10665/279788>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.

CORE COMPONENT 5 MULTIMODAL STRATEGIES

Multimodal strategies for priority IPC interventions

Use of multimodal strategies – at the very least to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments, devices and environmental cleaning.

WHAT (*minimum requirements*)

Multimodal strategies for priority IPC interventions

- Use of multimodal strategies – at the very least to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments/devices and environmental cleaning.

WHO (is responsible for action)

- Trained IPC link person and the IPC focal point with the support of an IPC-trained health care officer at the next administrative level are responsible for the use of a multimodal approach for the implementation of IPC interventions/SOPs.
- Successful multimodal strategies include the involvement of champions or role models.
- Collaboration with colleagues in quality improvement and patient safety (if available, usually at the next administrative level) to develop and promote multimodal strategies should be addressed.

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- Multimodal strategies³ are used to implement priority IPC interventions (at the very least to improve hand hygiene, safe injection practices, decontamination of medical instruments and devices and environmental cleaning).

WHY (rationale and additional details on *minimum requirements*)

- Multimodal strategies³ should be used for any IPC intervention at all levels of the health care system because their effectiveness is supported by strong evidence.
- However, it is recognized that multimodal strategies are complex approaches to be put in place. Thus, the interventions included in the *minimum requirements* are the priority ones among those that should be included in SOPs and training for the primary health care level (see *minimum requirements* for core components 2 and 3).

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- WHO multimodal improvement strategy leaflet; <https://www.who.int/infection-prevention/publications/ipc-cc-mis.pdf?ua=1>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.

³ Multimodal strategies comprise multiple measures to support the implementation of IPC improvement interventions and commonly focus on 1) system change, 2) training and education, 3) monitoring and feedback, 4) communications/reminders in the workplace, and 5) safety climate/culture change.

CORE COMPONENT 6 MONITORING AND FEEDBACK

Monitoring IPC structural and process indicators

Monitoring of IPC structural and process indicators should be put in place at primary care level, based on IPC priorities identified in the other components. This requires decisions at the national level and implementation support at the sub-national level.

WHAT (*minimum requirements*)

- Monitoring of IPC structural and process indicators should be put in place at primary care level, based on IPC priorities identified in the other core components. This requires decisions at the national and sub-national level and implementation support at the sub-national level.

WHO (*is responsible for action*)

- Trained IPC link person/focal point/IPC officer (or IPC committee/team if existing) are responsible for audit and feedback and should be trained in auditing technique plans.

HOW (*to measure progress*)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- A well-defined monitoring plan with clear goals/objectives, targets and activities focused on IPC structural and process indicators (including tools to collect data in a systematic way) is in place, based on IPC priorities identified in the other core components and, importantly, informed by decisions at the national and sub-national level, with implementation support at the sub-national level.
- Monitoring of hand hygiene compliance is undertaken using the WHO hand hygiene observation tool or equivalent.
- Feedback and/or auditing reports (for example, feedback on hand hygiene compliance data) are provided to front-line HCWs.

WHY (*rationale and additional details on minimum requirements*)

- IPC monitoring is critical to identify improvement action needed and should be in line with national recommendations and priorities.
- Monitoring of indicators of IPC practices, processes and infrastructures should be feasible at the primary care level, whereas HAI surveillance is not applicable.
- Hand hygiene infrastructure (for example, hand hygiene stations at the point of care or ABHR consumption) could be considered as a first step to monitoring.
- Hand hygiene compliance monitoring according to the WHO observation method is considered to be the gold standard.
- One person responsible for the monitoring of indicators should be identified, but this activity requires support at the sub-national level (for example, district).
- The selection of indicators to be monitored should be driven at national level, with input at regional/sub-national level; if these are not available, then facilities could identify indicators relevant to the services offered.
- Any decision should be in line with decisions on other core components.

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- Hand hygiene monitoring tools. Geneva: World Health Organization; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Hand hygiene self-assessment framework. Geneva: World Health Organization; 2010; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.

CORE COMPONENT 7 WORKLOAD STAFFING AND BED OCCUPANCY

- **To reduce overcrowding:**
a system for patient flow, a triage system (including referral system) and a system for the management of consultations should be established according to existing guidelines, if available.
- **To optimize staffing levels:**
assessment of appropriate staffing levels, depending on the categories identified when using WHO/ national tools (national norms on patient/staff ratio), and development of an appropriate plan.

WHAT (minimum requirements)

To reduce overcrowding

- A system for patient flow, a triage system (including a referral system) and a system for the management of consultations according to existing guidelines should be established.
- Assessment of appropriate staffing levels, depending on the categories observed when using WHO/ national tools (national norms on patient/staff ratio), and development of an appropriate plan.

WHO (is responsible for action)

- Decisions regarding workload, staffing and bed occupancy are not directly within the responsibility of the IPC link person, focal point or programme, but rather lie with senior managers and directors. Nevertheless, the IPC link nurse, officer or programme should understand the evidence supporting this core component and have an awareness of optimal patient/staff ratios in order to help influence decision-makers at the facility and ministry level, with the assistance of an IPC-trained health care officer at the next administrative level. Therefore, the development of IPC skills in negotiation and advocacy are therefore important considerations.
- The successful implementation of this core component should be supported by a national plan for human resource development.

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- Appropriate staffing levels are assessed in the facility according to patient workload using national standards or a standard staffing needs assessment tool, such as the WHO workload indicators of staffing need⁵ method.
- Agreed (that is, WHO or national) patient/staff ratios⁶ maintained across the facility.
- A system is in place in the facility to act on the results of the staffing needs assessments when staffing levels are deemed to be too low.
- Systems are in place to reduce overcrowding (for example, a system for patient flow, a triage system including a referral system, and a system for the management of consultations) according to existing guidelines/SOPs.

⁵The WHO Workload indicators of staffing need method provides health managers with a systematic way to determine how many HCWs of a particular type are required to cope with the workload of a given health facility to help decision-making (http://www.who.int/hrh/resources/wisn_user_manual/en/, accessed 23 August 2021).

⁶Taking into account all HCWs involved in service delivery and patient care, including clinical staff (doctors, nurses, dentists, medical assistants, etc.), laboratory technicians and other HCWs (for example, cleaners).

WHY (rationale and additional details on *minimum requirements*)

- Overcrowding and lack of triage and patient flow systems are recognized as a public health issue that can lead to disease transmission.
- Adequate staffing levels contribute to reducing germ transmission and preventing outbreaks.

TOOLS AND RESOURCES

- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- Essential environmental health standards for health care. Geneva: World Health Organization; 2008; <https://apps.who.int/iris/handle/10665/43767>.
- Workload indicators of staffing need (WISN). Geneva: World Health Organization; 2014; <https://apps.who.int/iris/handle/10665/44414>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Health workforce estimator. Copenhagen: WHO Regional Office for Europe; 2021; <https://www.euro.who.int/en/health-topics/Health-systems/pages/strengthening-the-health-system-response-to-covid-19/surge-planning-tools/health-workforce-estimator-hwfe>.

CORE COMPONENT 8 BUILT ENVIRONMENT, MATERIALS AND EQUIPMENT FOR IPC

- Water should always be available from a source on the premises (such as a deep borehole or a treated, safely managed piped water supply) to perform basic IPC measures, including hand hygiene, environmental cleaning, laundry, decontamination of medical devices and health care waste management according to national guidelines.
- A minimum of two functional, improved sanitation facilities should be available on-site, one for patients and the other for staff; both should be equipped with menstrual hygiene facilities.
- Functional hand hygiene facilities should always be available at points of care/toilets and include soap, water and single-use towels (or if unavailable, clean reusable towels) or alcohol-based handrub (ABHR) at points of care and soap, water and single-use towels (or if unavailable, clean reusable towels) within 5 metres of toilets.
- Sufficient and appropriately labelled bins to allow for health care waste segregation should be available and used (less than 5 metres from point of generation); waste should be treated and disposed of safely via autoclaving, high temperature incineration, and/or buried in a lined, protected pit.
- The facility layout should allow adequate natural ventilation, decontamination of reusable medical devices, triage and space for temporary cohorting/isolation/physical separation if necessary.
- Sufficient and appropriate IPC supplies and equipment (for example, mops, detergent, disinfectant, personal protective equipment (PPE) and sterilization) and power/energy (for example, fuel) should be available for performing all basic IPC measures according to *minimum requirements/SOPs*, including all standard precautions, as applicable; lighting should be available during working hours for providing care.

WHAT (*minimum requirements*)

- Water should always be available from an improved source on the premises to perform basic IPC measures, including hand hygiene, environmental cleaning, laundry, decontamination of medical devices, and health care waste management.
- A minimum of two functional, improved sanitation facilities should be available on-site, one for patients and one for staff; both should be equipped with menstrual hygiene facilities.
- Functional hand hygiene facilities should always be available at points of care/toilets and include soap, water and single-use towels (or if unavailable, clean reusable towels) or ABHR at points of care and soap, water and single-use towels (or if unavailable, clean reusable towels) within 5 metres of toilets.
- Sufficient and appropriately labelled bins to allow for health care waste segregation should be available (less than 5 metres from point of generation); waste should be treated and disposed of safely via autoclaving, incineration, and/or buried in a lined, protected pit.
- The facility layout should allow adequate natural ventilation, decontamination of reusable medical devices, triage and space for temporary cohorting/isolation/physical separation if necessary.
- Sufficient and appropriate IPC supplies and equipment (for example, mops, detergent, disinfectant, PPE and sterilization) and power/energy (for example, fuel) should be available for performing all basic IPC measures according to *minimum requirements/SOPs*, including all standard precautions, as applicable; lighting should be available during working hours (usually, 8am-5pm) for the provision of care.

WHO (*is responsible for action*)

- Trained IPC link person/focal point (see *minimum requirements* for core component 1), as well as the facility manager/in-charge and ancillary staff (for example, cleaning staff, incinerator operators).

HOW (to measure progress)

PRIMARY CARE LEVEL INDICATORS (YES/NO)

- Water services available at all times and of sufficient quantity for all uses (for example, handwashing, drinking, personal hygiene, medical activities, sterilization, decontamination, cleaning and laundry).
- Functioning hand hygiene stations (that is, ABHR or soap and water and clean single-use towels) available at all points of care.
- \geq Four toilets or improved latrines⁷ available for outpatient settings or \geq 1 per 20 users for inpatient settings.
- Sufficient energy/power supply available at least during working hours for all uses (for example, pumping and boiling water, sterilization and decontamination, incineration or alternative treatment technologies, electronic medical devices, general lighting of areas where care procedures are performed to ensure safe provision of health care, including toilet facilities and showers).
- Functioning environmental ventilation (natural or mechanical) available in patient care areas.
- Appropriate and well-maintained materials for cleaning available (for example, detergent, mops, buckets, etc.).
- Single patient rooms or rooms available for the cohorting⁸/physical separation of patients with similar pathogens or syndrome if the number of isolation rooms is insufficient (for example, tuberculosis, measles, cholera, Ebola, severe acute respiratory syndrome)⁹.
- PPE¹⁰ is available at all times and in sufficient quantity for all uses for all HCWs.
- Functional burial pit/fenced waste dump or municipal pick-up available for disposal of non-infectious (non-hazardous/general waste).
- Functional incinerator or alternative treatment technology of a sufficient capacity for the treatment of infectious and sharps' waste (for example, an autoclave) present either on- or off-site and operated by a licensed waste management service.
- A dedicated area is available for the decontamination and/or sterilization of medical devices and other items/equipment (either present on- or off-site and operated by a licensed decontamination management service).

WHY (rationale and additional details on minimum requirements)

- Adequate infrastructures and availability of adequate WASH support are essential to perform any health care services and IPC activities (for example, water is absolutely critical for hand hygiene, cleaning and key services, such as care delivery).
- Improved water sources are those which have the potential to protect water from external contamination (for example, microorganisms, dirt) by nature of their design and construction. While drinking water is not required for basic IPC measures, water from improved sources may better facilitate performing IPC measures according to guidelines/SOPs, for example, water from groundwater sources that is non-turbid can generally enable the effective preparation of disinfectant solutions for environmental cleaning and decontamination of medical devices. The chlorine concentration in all disinfectant solutions should be regularly monitored and the dose adjusted as necessary to meet chlorine concentration targets.

⁷ Improved sanitation facilities include flush toilets into a managed sewer or septic tank and soak-away pit, VIP latrines, pit latrines with slab and composting toilets. To be considered usable, a toilet/latrine should have a door that is unlocked when not in use (or for which a key is available at any time) and can be locked from the inside during use. There should be no major holes or cracks or leaks in the toilet structure, the hole or pit should not be blocked, water should be available for flush/pour flush toilets. It should be within the grounds of the facility and it should be clean as noted by the absence of waste, visible dirt and excreta, and insects.

⁸ Cohorting strategies should be based on a risk assessment conducted by the IPC team.

⁹ Negative pressure ventilation conditions in isolation rooms may be necessary to prevent transmission of some organisms (for example, multidrug-resistant tuberculosis).

¹⁰ PPE: medical non-sterile and surgical sterile gloves, surgical masks, goggles or face shields and gowns are considered as essential PPE. Respirators and aprons should also be available in adequate quantities in all facilities for use when necessary.

- Improved sanitation facilities are those designed to hygienically separate human excreta from human contact, which is critical for reducing the transmission risk from enteric pathogens and, in addition to menstrual hygiene facilities, help maintain a hygienic environment; separate toilets for patients and staff also helps to minimize indirect contact between patients and staff that may pose an infection risk.
- When there is a risk of soiling, ABHR is not a substitute for soap and water for hand hygiene, such as after toileting or when hands are visibly soiled (for example, while assisting in childbirth).
- If ABHRs are available, it is essential to have these accessible at all points of care given their proven advantages over soap and water, but it is also essential that soap, water and single-use towels are available in clinical services.
- Adequate ventilation throughout the facility contributes to maintaining a hygienic environment and can be minimally accomplished via the presence of functional windows (preferably equipped with insect traps) and doors that allow at least 6-8 air changes per hour for natural ventilation (for example, by opening opposite windows).
- Sufficient energy/power and a stand-by 'back-up' arrangement (including solar, wind, stand-by generator or others) and fuel should be available on-site for lighting clinical practices and basic IPC measures (for example, for performing decontamination of medical devices, if needed).
- If the facility performs any procedures (for example, childbirth delivery or other basic gynaecological procedures) requiring reusable medical devices (for example, vaginal specula), at a minimum, it is essential to create dedicated areas that allow proper workflow from dirty to clean for performing the decontamination and reprocessing of medical devices.
- A small space to assess patients regarding the disease/reason for accessing the facility (that is, triage), including any infectious disease transmission risk, and to allow them to be directed to different areas according to priority and type of disease can be accomplished with minimal resources.
- Adequate space for temporary cohorting/isolation can also be accomplished with minimal resources by the creation of a physical separation or barrier between suspected/infected patients and other patients, staff and visitors, and is critical for ensuring transmission-based precautions. If resources allow, a room or area should be designated for this function.

TOOLS AND RESOURCES

- Joint Monitoring Programme definitions of improved water/sanitation. WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. 2019; https://www.unwater.org/app/uploads/2017/05/redesign_chart_JMP_JUL2017_3-02-e1501763782601.png.
- Guidelines on sanitation and health. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/bitstream/handle/10665/274939/9789241514705-eng.pdf>.
- Essential environmental health standards in health care. Geneva: World Health Organization; 2008; <https://apps.who.int/iris/handle/10665/43767>.
- Safe management of wastes from health care from health-care activities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/259491>.
- Decontamination and reprocessing of medical devices for health-care facilities. Geneva: WHO and Pan American Health Organization; 2016; <https://apps.who.int/iris/handle/10665/250232>.
- Guidelines on tuberculosis infection prevention and control. 2019 update. Geneva: World Health Organization; 2019; <https://apps.who.int/iris/handle/10665/311259>.
- Natural ventilation for infection control in health-care settings. Geneva: World Health Organization; 2009; <https://apps.who.int/iris/handle/10665/44167>.
- Guidelines on core components of IPC programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes. Geneva: World Health Organization; 2018; <https://apps.who.int/iris/handle/10665/279788>.
- WASH in health care facilities: global baseline report. WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. 2019; <https://apps.who.int/iris/handle/10665/311620>.

- WASH in health care facilities: practical steps to achieve universal access to quality care. Actions and solutions. Geneva: World Health Organization; 2019; <https://www.who.int/publications/item/9789241515511>.
- Infection prevention and control assessment framework-minimum requirements (IPCAF-MR) - in development. Geneva: World Health Organization; 2021; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components>.
- Water, sanitation and hygiene facility improvement tool (WASH FIT); <https://apps.who.int/iris/handle/10665/254910>.



3

Part B. Infection prevention and control in primary care: implementation resources with a focus on hand hygiene improvement

3.1 Introduction to implementation and improvement resources

Summary

Part B is focused on the following three existing WHO IPC implementation-focused resources and associated concepts.



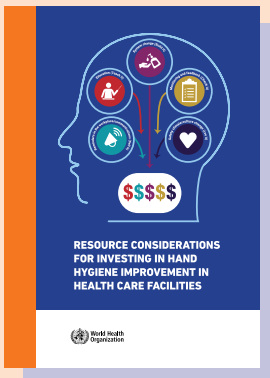
1. General implementation principles and the multimodal improvement strategy (MMIS).

- This section introduces the reader to some critical principles and approaches recommended by WHO for planning, implementing, monitoring and sustaining IPC programmes and interventions, including a 5-step cycle approach briefly introduced in Part A and the WHO multimodal improvement strategy (MMIS) (13).
- The content was extracted from an existing [implementation manual](#) (4) created to support implementation of the WHO core components and all relevant guidance and standards. This section signposts the reader to the relevant sections of the implementation manual for further information and will be useful for those eager to strengthen IPC in primary care. The existing implementation manual is intended to be used with some adaptations for community, primary care and long-term care facilities as they develop and review their IPC programmes and/or plans, in particular for IPC link persons and for those at the next administrative level (for example, district level) who directly influence IPC human and financial resources at the primary care level.
- Of note, an important caveat of this resource is that it was originally developed with a central focus on secondary and tertiary care and the tips, practical considerations, barriers and solutions and example action plans reflect this focus. However, some of the general implementation principles are universal.
- The [WHO hand hygiene guide to implementation](#) and other key documents also feature a 5-step implementation cycle (13-15).



2. Hand hygiene and primary care

- With a focus on hand hygiene improvement, WHO developed a hand hygiene guide that is useful for primary care (5).
- This section extracts key content from the [hand hygiene guide](#) to support implementation and improvement of hand hygiene in primary care.



3. Resource considerations for investing in hand hygiene improvement in health care facilities

- Understanding what resources are needed for investing in hand hygiene improvement is critical for the feasibility and success of an improvement programme. Another critical WHO document focuses on these **resource considerations** and includes specifications for primary health care using the MMIS approach (6).
- This document presents the inputs (such as equipment, supplies and activities) required to estimate the investments needed to implement and sustain a comprehensive hand hygiene programme based on the MMIS, but also to support HCWs to perform hand hygiene at the point of care and at other important times to ensure safe, high quality care. Where available, costing and other relevant tools that can help in the estimation of required resources are listed.
- This section therefore extracts key content from [this document](#) to support those involved in developing and promoting the implementation of hand hygiene improvement in primary care.

3.1.1 General implementation principles and the multimodal improvement strategy

About this section

- The following content is based on the source document (here referred to as “implementation manual”): [Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes](#).
- It introduces the reader to some of the general implementation principles contained within this practical manual, including the MMIS.
- It summarizes key content related to the MMIS and a 5-step implementation cycle extracted from the implementation manual.
- The reader is advised to consult the implementation manual for a comprehensive outline of how to implement IPC programmes.
- For ease, Table 3.1 presents a summary of the content of the implementation manual and signposts the reader to content that might be of interest.

Table 3.1. At-a-glance outline of the contents of the implementation manual*.

SECTION	BRIEF DESCRIPTION AND RELEVANCE TO PRIMARY CARE	PAGES IN SOURCE DOCUMENT
Part I Introduction	<ul style="list-style-type: none"> • Describes the purpose, target audience, and how to use the manual. • Summarizes the 5-step approach to implementation (see Fig. 3.1 below). • Presents examples of how the manual can be used. • Introduces the relevance of the MMIS** to support implementation – the MMIS, its potential application in primary care and an outline of ‘multimodal thinking’ is addressed below. 	6-12
PART II The core components: <i>what, why, when, who, how</i>	<ul style="list-style-type: none"> • The manual summarizes the what, why, when, who and how of each core component. • This section of the implementation manual is of general interest to a primary care audience; however, the reader should become familiar with the <i>what, why, when, who</i> and how of each of the minimum requirements as described in Part A of this document. 	14-25
PART III Implementation	<ul style="list-style-type: none"> • This important section of the manual systematically presents each of the 5 implementation steps and describes: <ul style="list-style-type: none"> - the purpose of the step - a table of practical tips, key considerations and actions - sample scripts to guide communications (where relevant) - a table of implementation barriers and solutions, including real life implementation examples from across the world - tools and resources - a checklist listing the actions that should be completed by the end of each step. • Step 3 – Developing and executing the plan is the most detailed section and contains the following for each core components: <ul style="list-style-type: none"> - a sample action plan - a list of potential barriers and solutions, including real life implementation examples - tools and resources bespoke to the core component. • The sample action plan tables may be useful since they contain examples of gaps identified during step 2 and a list of potential actions that can be taken to address the gap, including links to available tools/resources. Sample plans also suggest who should lead the action, a potential timeline and budget estimates. where applicable. • A description and visual representation of the 5 steps are presented below. • The reader is recommended to consult the source document as required, depending on the gaps identified by the IPCAF-MR. 	27-115
Annexes	<ul style="list-style-type: none"> • The manual contains the following three Annexes: 1) multimodal strategy guiding questions; 2) a report template for IPC assessment; and 3) framework finding and action plan templates. • As the reader becomes familiar with the 5-step implementation cycle, these annexes should be reviewed. • The multimodal strategy guiding questions are provided in Annex 1 of this document. • A report template for the findings of the Infection Prevention and Control Assessment Framework – minimum requirements is provided in Annex 2 of this document. 	116-123

* [Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO guidelines on core components of infection prevention and control programmes.](#)

** MMIS: multimodal improvement strategy.

3.1.2 The multimodal improvement strategy (MMIS) Implementing the WHO MMIS for IPC interventions in primary care

The MMIS (IPC core component 5) should be used for priority IPC interventions in primary care – at the very least to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments, devices and environmental cleaning.

The WHO MMIS comprises five elements commonly referred to as:

1. system change;
2. training and education;
3. monitoring and feedback;
4. reminders and communications; and
5. a safety culture.

In other words, the strategy involves 'building' the right system, 'teaching' the right things, 'checking' the right things, 'selling' the right messages, and ultimately 'living' IPC throughout the entire health system. Lessons from the field of implementation science suggest that targeting only one of these five elements (that is, using a 'unimodal' strategy) is more likely to result in improvements that are short-lived and not sustainable. The MMIS was originally conceived for hand hygiene improvement, but has also been used for other IPC improvements.

Multimodal thinking

The use of the MMIS is the way to achieve the system change, climate and behaviour that supports IPC progress and, ultimately, the measurable impact that benefits patients and HCWs. It is based on evidence about best approaches for IPC implementation.

When developing an action plan to improve priority IPC interventions or address an identified gap, multimodal thinking means systematically asking targeted questions (Box 3.1).

Box 3.1. Multimodal thinking.

Multimodal thinking

1

What resources, infrastructures or supplies are required to facilitate practices?

This includes consideration of procurement and accessibility of supplies, water availability and quality and ergonomic factors, including workflow. For example, the availability and placement of soap and ABHR (system change/'build it') to ensure that HCWs, patients and visitors are able to access a hand hygiene infrastructure and products. See the section on resource considerations for further details.

2

Who needs to be trained and/or educated to address the identified gap – how will this happen and who will undertake the training/education?

This involves written information and/or oral instruction and/or e-learning, together with practical and interactive training sessions including simulation and/or facility-

based training. For example, is the IPC link person supported and trained with dedicated time to deliver training to front-line clinical staff on priority interventions? (education and training/'teach it').

3

How have you become aware that practices need to be improved – how will you know that an improvement has taken place? This usually involves monitoring compliance with process and practice indicators, as well as monitoring outcome indicators. For example, are decontamination process audits undertaken with the provision of timely and direct feedback of results to the next administrative level? (monitoring and feedback/'check it').

4

How will you publicize action on specific measures and promote improvement and best practice in this area?

This may involve the use of reminders, posters or other advocacy/awareness-raising tools and cues-to-action to promote a priority intervention and methods/initiatives to improve team communication. For example, the use of posters and job aids to reinforce environmental cleaning best practices (communications and reminders/'sell it').

5

How will you make and maintain this as a priority and engage champions and role models over time?

This is concerned with ensuring that senior managers/leaders, for example, at the next administrative level, show tangible support and act as champions and role models, including making relevant decisions and promoting an adaptive approach and strengthening a culture that supports IPC, patient safety and quality. This will also involve engaging with the local community. In addition, teams and individuals are empowered so that they perceive ownership of the intervention. For example, an IPC link person empowered to discuss hand hygiene infrastructure gaps with the IPC-trained health care officer at the next administrative level (safety climate and culture of safety/'live it').

Annex 1 contains a template and list of multimodal guiding questions that can be printed and used when developing a multimodal strategy for IPC interventions in primary care.

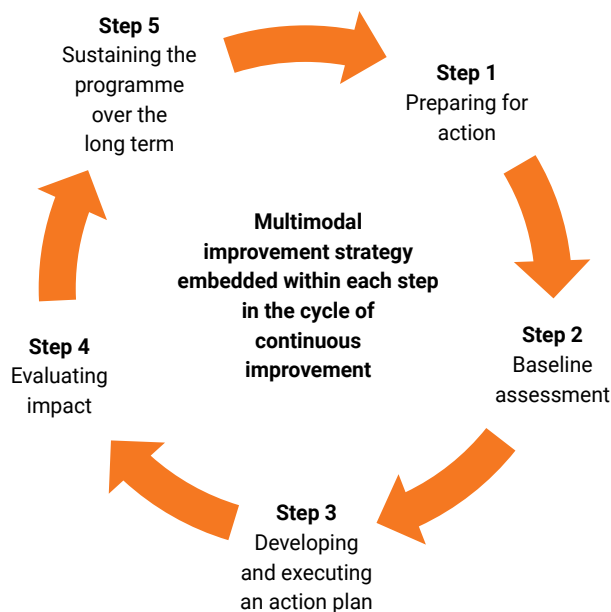
3.1.3 The 5-step improvement cycle

- Whether applying the *minimum requirements* or full requirements, the implementation of the IPC core components should always be tackled using a stepwise approach, based on a careful assessment of the status of the IPC programme and local activities. A country or a health care facility may not be able to aim at putting in place all core components or even all *minimum requirements* at the same time.
- To undertake this process, WHO proposes a 5-step cycle of implementation (Box 3.2 and Fig. 3.1.) to support any IPC improvement intervention or programme.
- The 5-step improvement cycle approach is meant to be applied for the implementation of IPC programmes in general, as well as for specific improvement interventions (for example, hand hygiene or injection safety interventions). Each step (Box 3.2) is relevant to the process of improvement. However, depending on the local situation, some steps may already have been achieved, while others may need gradual development or to be revisited.

Box 3.2. The 5-step improvement cycle approach to IPC programmes.

BOX 3.2		THE FIVE-STEP CYCLE TO INFECTION PREVENTION AND CONTROL IMPROVEMENT		
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Preparing for action	Baseline assessment	Developing and executing an action plan	Assessing impact	Sustaining the programme over the long term
This step aims to ensure that all of the prerequisites that need to be in place for the success of an IPC intervention or programme are considered. These include starting to think about the identification of key players and their roles and responsibilities, as well as the necessary resources (human and financial), infrastructure/s, planning and coordination of activities. Of note, the preparations made can be refined through step 3 after conducting step 2.	Conducting an objective baseline assessment of the current situation of the IPC core components and <i>minimum requirements</i> is critical for the identification of existing strengths and gaps. Standardized and validated assessment indicators and tools available from WHO are listed in Part 3. The national and facility level standardized tools to assess the IPC core components and WASH are described in Boxes 3-5.	Developing a tailor-made action plan that addresses the local reality and focuses on the priority areas for improvement identified through the baseline assessment. The development and execution of an action plan should be based upon a multimodal improvement strategy and supported by a dedicated budget.	Conducting a follow-up assessment using the same tools as in step 2 is crucial to determine the effectiveness of the plan and achievement of the <i>minimum requirements</i> .	Further review of the long term impact and acceptability of the ongoing action plan, and ensuring its sustainability, are important steps in the cycle of improvement. This allows also an evaluation of the next steps and priorities for implementation of all <i>minimum requirements</i> and the IPC core components in full.

Figure 3.1. The 5-step cycle to IPC improvement.



3.1.4 Using the 5-step improvement cycle

Step 1. Preparing for action

Purpose of step 1

This step is concerned with getting ready to assess and improve IPC and build the foundations for improvement.

- Part A presented the what, why, who, when and how of each minimum requirement for primary care. This knowledge can empower the target audience to talk about the *minimum requirements* and core components with confidence to senior managers and leaders, whose support is crucial for success, particularly at the next administrative level.
- Step 1 involves the planning and putting in place of measures that will support successful implementation, as well as the sustainability of an effective IPC programme and its respective components. These include the necessary resources (human and financial), adequate infrastructures, plans and coordination, as well as identifying and engaging key leaders, stakeholders and champions, and an IPC-trained link person and health care officer for the IPC improvement work.
- A major part of step 1 will involve meeting and talking to stakeholders. Although the baseline assessment has yet to be undertaken, communication and advocacy are important to prepare the way for the remaining four steps.

Practical tips, key considerations and actions

During step 1, focus on undertaking the necessary groundwork to support future actions.

- Pay attention to gaining an understanding of the likely human and financial resource requirements needed to improve one or more IPC core component according to the *minimum requirements* in primary care settings.
- Depending on the current situation, step 1 may take many months. It is important that day-to-day activities to keep patients and HCWs safe continue during this preparatory step.

Implementation barriers and solutions

- **Potential barrier 1: IPC is not considered a priority**
- **Potential solutions**
 - Explore availability of data including IPC-related assessments (for example, WASH assessments) to highlight problems and share with those at the next administrative level. Evaluation and monitoring will be addressed in more detail in step 2, but if existing data is available, for example, national or sub-national level data, use this in discussions with leaders.
 - Regular communication and advocacy with senior leadership/managers at the next administrative level is key.
 - Integrate IPC into relevant meetings at the next administrative level and present on IPC, for example, at quality, safety, WASH or AMR meetings.
 - Keep leaders and managers copied on relevant e-mails/memos.
 - Start small – explore whether a small budget line is possible – this can be symbolic and demonstrate (even a small) commitment that can then be built on, for example, shared office space, desk and telephone, agreed budget for future training materials.
- **Potential solutions**
 - During the initial set-up of an IPC programme it will take time to secure the necessary “hardware”, such as the necessary equipment, including IT.

Step 1 checklist

At the end of step 1, you should have:

- familiarized yourself with the *minimum requirements* in Part A;
- prepared a 'script' or key points to guide discussions with management and leadership;
- made a list of the exact key stakeholders that will be engaged, based on the local context;
- collected any previous assessments/reports and data that address IPC;
- investigated any IPC integration possibilities with current activities in primary care or at the next administrative level, for example, with AMR, WASH, quality, safety, etc.;
- listed any patient or civil society groups that exist and could support IPC advocacy;
- held a series of advocacy meetings with leaders, key stakeholders and champions/opinion leaders;
- secured verbal and written management and leadership support for IPC;
- identified an IPC link person and health care officer at the primary care facility and a trained IPC officer at the next administrative level to undertake training of the IPC link person;
- identified possible human and financial resources to support and sustain the work (where necessary).

Step 2. Baseline assessment

Purpose of step 2

This step is concerned with conducting an exploratory baseline assessment of the current IPC situation in primary care facilities, including identification of existing strengths and weaknesses.

- Baseline assessment (and repeating assessment regularly) is essential for continuous quality improvement.
- Assessment helps to create a sense of urgency for the changes needed to improve IPC, taking account of current risks, actual needs and available resources.
- Assessment also helps to identify existing strengths and take stock of achievements made so far to convince decision-makers that success and progress is possible.
- By using a validated tool (WHO IPCAF-MR) (9), you can be confident that the information collected is meaningful and will support improvement in primary care facilities. The IPCAF-MR includes a set of indicators for primary care facilities that have been identified specifically for the purpose of measuring the situation of a health care facility according to the *minimum requirements* for IPC programmes.
- In addition to the IPCAF-MR, it would be ideal to conduct additional IPC assessments using other reliable tools (for example, the WHO hand hygiene self-assessment framework (HHSAF) (12) and/or IPC practices and observational tools listed in the tools and resources section). However, the WHO HHSAF was not conceived for primary care facilities and thus, it should be adapted. It is important to use all relevant data available (for example, data gathered from using the WASH FIT tool (16) or during an outbreak).
- The WASH FIT tool complements the IPCAF-MR and provides a greater depth of information on the built environment.
- WASH FIT is a risk-based approach for improving and sustaining WASH and health care waste management infrastructure and services in facilities in low- and middle-income countries.
- WASH FIT is an improvement tool to be used on a continuous and regular basis to help health care facility staff and administrators prioritize and improve services, and to inform broader district, regional and national efforts to improve quality health care. The WASH FIT guide contains practical step-by-step directions and tools for assessing and improving services (see tools and resources).
- The actual process of conducting the baseline assessment, for example, meeting with managers of wards and departments to discuss the assessment and answer questions, also facilitates ongoing advocacy and provides an opportunity to strengthen the engagement of key stakeholders.
- Monitoring of hand hygiene practices and infrastructures (including monitoring of compliance and the availability of adequate equipment for hand hygiene at the point of care) is also considered a key IPC indicator (and a strong recommendation in the core component guidelines) that should be mandated at the national level as it can indicate how well a facility is performing regarding IPC implementation.

Key considerations and actions

- Get to know the IPCAF-MR. Print the IPCAF-MR (see tools and resources) and spend time familiarizing yourself with its content, in particular, how the assessment is structured, the scoring system and the meaning of the proposed indicators.
- Advocating for and promoting the value of the IPCAF. Share the IPCAF-MR with the IPC team, IPC committee and senior managers and leaders (for example, at one-to-one or group meetings). If the IPCAF-MR is undertaken as a self-assessment, emphasize that its usefulness depends on

being completed as objectively and accurately as possible. Clearly explain that the aim is to drive improvement and not to make negative judgements. Therefore, identifying existing strengths and achievements will help build confidence and convince decision-makers that success and progress is possible. Honestly recognizing gaps will help to create a sense of urgency for the changes needed to improve IPC. For these reasons, it is important to determine the correct score for each section. Explain that the IPCAF will be repeated annually to check on progress and therefore an inflated high score at the baseline stage is not desirable.

- Preparing to complete the IPCAF-MR – agreeing roles and responsibilities. The IPCAF-MR should be completed by the IPC focal point in discussion with the IPC team and/or committee. If the IPC focal point position is not yet established, a person with competence in IPC practices from the ministry of health (national or district level) should be consulted to support completion in collaboration with senior facility managers, if possible. Consider whether to coordinate completion of the IPCAF with other relevant departments (for example, quality and safety, WASH, AMR) as this will also assist in securing their support for the overall IPC improvement work. Consider securing someone with informatics skills to support data input, analysis and presentation, if available. Otherwise, the framework completion and the score calculation can also be easily done manually on paper. Agree how and when results will be fed back and outline who would be best to do this, depending also on the target audience.
- Presenting the results. Schedule a series of meetings to provide the following groups with feedback of the results by highlighting the strengths and the areas for improvement: IPC committee; senior managers; leaders of the facility clinical services and departments; and other relevant departments, for example, quality and safety, AMR, WASH. Use the sample presentation outline (link available in the tools and resources section). Prepare a short report summarizing achievements and gaps. Share the report with senior managers and leaders, including wards and departments who participated in the assessment, and other relevant departments.

Implementation barriers and solutions

- **Potential barrier 1: Difficulties gaining support for the IPCAF-MR process.**
- **Potential solutions**
 - Some managers will need to be convinced that the IPCAF-MR will be used in an improvement perspective to generate actionable results.
It is important that the IPCAF-MR is positioned as a critical diagnostic tool that will make it easy to develop a clear plan of action.
 - Consider using previous successful assessment examples to promote the value of assessment as a driver of improvement, for example, WHO HHSFA, if adapted and used in your primary care facility.
- **Potential barrier 2: “Assessment fatigue”.**
- **Potential solutions**
 - Present the assessment as part of achieving other goals, for example, AMR, WASH, etc., and aim to undertake it with other assessment exercises.
 - Emphasize just how important this assessment is with regards to patient safety, public health, etc.

Step 2 checklist

At the end of step 2 you should have:

- ☑ familiarized yourself and your team with the IPCAF;
- ☑ communicated with key stakeholders and leaders on the plan for undertaking the IPCAF;
- ☑ decided who will collect the data and a date for completion;
- ☑ collected information and completed the IPCAF for all areas being assessed;
- ☑ analyzed the IPCAF results;
- ☑ presented findings to leaders and other stakeholders;
- ☑ agreed on a frequency of repeat IPCAFs (and other assessments) – at least annually;
- ☑ prepared and presented a report to senior managers and leaders and those who participated in the assessment.

Step 3. Developing and executing the plan

Purpose of step 3

Step 3 is informed by the results of the baseline assessment.

- The IPCAF-MR results together with other IPC assessments/observations enable you to identify priority areas for action and gain consensus on how to address these priorities and maximize identified strengths.
- The multimodal strategy and associated guiding questions will help in the development of your action plan.
- It is important to focus initially on achieving short-term wins – start small and think big! A realistic, priority-driven action plan based on your local context is key.
- In addition, it is worth remembering that a longer-term strategic plan is also important in terms of evaluating the overall impact of the IPC programme (for example, a 5-year strategy) and the action plans addressed within step 3 can feed in to this plan.

Practical tips, key considerations and actions

The aim of step 3 is to develop a list of actions, responsibilities, timelines, budgets and expertise needed and to review dates for each core component to be implemented using the IPCAF-MR results and based on identified needs.

- Review the IPCAF-MR results for each minimum requirement with the IPC focal point and other colleagues at the next administrative level. You may decide to focus on one minimum requirement only for initial action or focus on more. Your decision will depend on your IPCAF-MR results, your local context (for example, available resources and expertise) and discussions with leaders and managers. You may also consider urgent problems to be faced (for example, a specific type of infection to be reduced due to its burden locally) and available opportunities (for example, partners' interest in supporting specific relevant projects). You can also identify minimum requirements that are already partially implemented, but for which the score could be improved in specific areas. Regardless of the minimum requirement chosen, a comprehensive action plan should be developed and presented to leaders and senior managers for their approval.
- In this section, you will find information on suggested action planning for each component. First, look at the general key considerations and actions below to ensure successful development and execution of the plan.

Momentum for improvement

- Constantly refer to the IPCAF-MR or other assessment results to build on your vision for IPC and to further create the necessary sense of urgency for developing and executing the plan.
- Continue to communicate your IPC vision and narrative through regular meetings with leaders and managers as you develop your plan.
- Consider joining up with other improvement activities to present how your IPC action plan will ultimately feed in to overall quality indicators and reports.

Establishing a plan and considering where to target action using multimodal thinking

- Work with the IPC team and/or the IPC committee and review the subtotal score for each minimum requirement. Is there an obvious minimum requirement with a very low or zero score? You can choose to focus on low or zero scores if it is not possible to work on all *minimum requirements* – these will most likely be your immediate priorities for action.
- Use the multimodal guiding questions (Annex 1) to help you to clarify specific actions that will need to be addressed in your action plan.
- Are the necessary expertise and resources available? If there are many gaps, it is better to start from the components that can be improved more easily and quickly to ensure ongoing support.
- Consider what type of support is available at the next administrative or national level (for example, existence of guidelines or standard operating procedures not yet implemented in your primary care setting) or whether other primary care settings in are already focusing on specific *minimum requirements/actions* that can help you to decide on your focus as there might be opportunities for support or sharing experiences/resources.
- Make a list of what needs to be done to guide discussions and help with the development of your action plans.
- Arrange a meeting with the IPC trained healthcare officer at the next administrative level to present the final draft plan and seek approval, ensuring that you give a deadline for when this is required by – leadership approval is important for ultimate success.

Securing support and approval for the action plan – revisiting your stakeholder list

- Determine who needs to be involved in the development and sign-off of the action plan to achieve the greatest impact with proposed actions.
- The stakeholder list developed in step 1 will be useful to review.

Securing the necessary resources to address the gaps identified by the IPCAF-MR

- Consider whether there are specific resource implications (human or financial) related to specific minimum requirement implementation that have not already been considered in step 1. Note that not all improvements require resources – in some cases, low or no cost improvements can be made quickly.
- Clearly highlight the necessary additional resources (no matter how small) both verbally and in writing to leaders and managers before the action plan is signed off.
- If necessary, explore if any external partner/nongovernmental organization could help support the plan.

Use a systematic approach

- Overall, the aim of developing and evaluating your plan is to systematically take the 'problems' or gaps identified from the IPCAF-MR, outline a response to these, and then assess the effectiveness of the response implemented. This is at the core of your action planning, so:
 - translate the findings of the IPCAF-MR into an action-focused and impact-focused plan taking the local context into account;
 - ensure that the written action plan (see the action plan templates in Annex 3 and multimodal guiding questions in Annex 1) is available and signed off before you progress further;
 - try to develop specific, measurable, achievable, realistic and time-bound (SMART) objectives to guide the development of your plan (see sample action plans below for each core component). Agree upon a schedule of reporting to leaders and managers to assess progress;
 - put the plan into action and monitor progress at regular operational meetings;
 - communicate and hold meetings with key stakeholders at set time intervals to investigate how actions are progressing and identify any barriers to progress – although common barriers have been outlined in this document, local barriers will arise and must be addressed to ensure staff engagement.

Step 3 checklist

At the end of step 3, you should have:

- printed the action plan template and multimodal strategy guiding questions;
- prioritized actions for each priority minimum requirement;
- reviewed the key considerations for each relevant minimum requirement;
- checked on the available tools and resources to support implementation outlined in Part A;
- completed your action plan for each priority minimum requirement;
- arranged to meet with the IPC-trained health care officer at the next administrative level to discuss your action plan;
- ensured that the action plan forms an agenda item at the relevant IPC committee and will be regularly updated/reviewed for progress.

Step 4. Assessing impact

Introduction to step 4

- Step 4 is a critical step for decision-making, sustainability and modifying IPC annual plans. It is concerned with collecting the evidence/data to determine what has worked, what actions still need to be undertaken and what resources are needed to make the necessary ongoing improvements.
- This step involves conducting a follow-up assessment to evaluate whether your action plans have worked and to identify the achievement of any impact. It involves reviewing each of your action plans and repeating the IPCAF-MR and any other relevant assessments (for example, WHO adapted HHSAF) using the same methodology and tools used for step 2 or previously. Step 4 will provide the necessary data to highlight where improvements have been made and where gaps remain. This step will also help consolidate the improvements made through the implementation of your action plans developed in step 3 and provide the basis for step 5.

Practical tips, key considerations and actions

Before repeating the IPCAF-MR and other assessments work through some key considerations and key actions.

Tracking progress

- Use your action plan and IPCAF-MR results from step 2.
- Review the IPCAF-MR scores and then review the action plan with your team.
- Gather together and use any existing or routinely collected data relevant to IPC.

Agreeing on roles and responsibilities

- Decide with colleagues and managers who will undertake the repetition of the IPCAF-MR – mirror the approach taken in step 2.
- Consider involving colleagues if possible to secure ongoing engagement for IPC improvement and help to foster a culture of learning.

Timeline for completion

- During meetings decide on a schedule and timeline for completion.

Analysing the results

- Use the scoring chart to complete the scores for each section and calculate your overall score.
- Compare results with the baseline assessment and discuss with the IPC-trained health care officer at the next administrative level where progress has been made and where gaps still exist – overall and according to each minimum requirement.
- Use the information in the repeated IPCAF-MR to review each action from the original action plan and make a note of achievements and gaps.
- What are the results telling you about what is working and what is not working?
- Discuss with the IPC committee and make summary notes to guide your discussions with leads of other programmes.

Presenting the results and developing a regular schedule of evaluation

- Arrange a series of meetings to communicate the findings of the repeated IPCAF-MR to leads of other programmes, for example, quality and safety, AMR, WASH, immunization and tuberculosis.
- Encourage group discussion, constructive feedback and problem solving.
- Ask for feedback on the results – what do they think is working/not working? What actions do they think are required for further improvement?
- Develop a new plan of action, where required, to address new or continuing gaps and challenges.
- Agree on a regular schedule of evaluation to assess the impact of your revised action plan, including an agreed frequency of repeat IPCAF-MRs. At a minimum, it is suggested that you repeat the IPCAF-MR annually.
- Prepare a short report summarizing achievements and gaps (see template, Annex 2).
- Share the report with all who participated in the assessment. All those involved in implementing IPC improvements should receive feedback on what has worked and what has not – this is important for ongoing engagement and sustainability.
- Make sure that staff achievements and efforts are recognized by rewarding them in a culturally sound manner (for example, best-performing team pictures displayed at the entrance of the facility, or moments for celebration).

Updating your action plan

You are now ready to modify your action plans or develop new plans informed by the results of the IPCAF-MR and other repeated assessments and the key actions listed above using the action plan template in Annex 3.

Step 4 checklist

At the end of step 4 you should have:

- ☑ reviewed your baseline assessment results from step 2;
- ☑ reviewed your action plan from step 3;
- ☑ reviewed your IPC annual plan (where one exists);
- ☑ printed new copies of the IPCAF-MR (and other relevant assessment tools);
- ☑ agreed on a schedule and timeline for repeating the IPCAF-MR (and other assessments);
- ☑ completed the repetition of assessments;
- ☑ reviewed results in comparison with baseline assessment results from step 2 and presented findings to leaders and other stakeholders;
- ☑ developed a new action plan based on identified gaps and challenges;
- ☑ agreed on a frequency for repeating IPCAF-MR (and other assessments) in the future – at least annually;
- ☑ prepared and presented a report to senior managers and leaders, including wards and departments who implemented improvement action plans and participated in the assessments, and any other relevant departments.

Step 5. Sustaining the programme over the long term

Practical tips, key considerations and actions

- Based on the information obtained in step 4, you can now see clearly where improvements have been made and where gaps remain.
- Step 5 is concerned with regularly reviewing and improving IPC with new actions (for example, projects, themes, campaigns) to help institutionalize IPC improvement.
- It is important to build on the communication channels and the organization of the IPC programme established so far to ensure that IPC is considered a critical part of the business of your health facility.
- Where an IPC committee is available (primary health care facilities are usually supported by an IPC committee at the next administrative level, e.g. district) and if regularly involved and consulted, the IPC committee will have an important role in supporting this effort.

During this step, you will establish an ongoing review and engagement cycle to support the long-term impact and benefits of the programme and ensure that it is embedded in existing processes across your health facility, thus contributing to its overall impact and sustainability.

Even if you have not systematically worked through each of the steps in this practical manual, it may still be beneficial to consider the practical tips, key considerations and actions in step 5.

Building on the momentum generated during steps 1-4 to drive forward a sustainable plan

- Use the revised action plan and IPCAF-MR results to develop a long-term (5-year) plan including a regular (at least annual) review cycle to address long-term sustainability.
- Ask the IPC committee to review this approach and incorporate its input for its finalization.

Maintaining leadership support for long-term IPC improvement

- Arrange meetings with managers and leaders to secure long-term leadership and management support for the IPC programme.
- Discuss the process, actions and impact so far by building upon success and progress.
- Highlight current challenges and areas for further improvement and risks if sustainability is not ensured and maintained – share the new action plan and long-term approach – encourage discussion and feedback.
- Arrange meetings with identified champions and opinion leaders to thank them for their support, gather their advice on the long-term plans, and discuss how they can continue to support IPC in the primary care facility.
- Use the 'scripts' you developed in step 1 or have created since then as part of your ongoing engagement strategy, particularly when you need to keep messages short and to continue to outline and reiterate the IPC vision.
- Establish a process to provide regular feedback on action plan progress, for example, through the IPC committee and other relevant committees, for example, safety and quality.

Celebrating and communicating success

- In addition to meetings with stakeholders, consider other creative ways to continue to celebrate and communicate success, for example, is it feasible to write-up your improvement journey for academic publication or presentation at a national (or international) conference?
- Is there an opportunity to publicize the success via the local media (newspaper, radio or television)?
- What about the potential use of social media/social networks such as YouTube to show videos or podcasts if these are relevant to your setting?
- Where appropriate for your context, consider the use of incentives to motivate staff as part of an ongoing approach for rewarding progress (for example, offering educational opportunities, such as participation in national or international IPC courses/workshops).

Implementation barriers and solutions

- **Potential barrier 1: Key leaders and/or champions leave.**
- **Potential solutions**
 - Consider periodic refreshing or re-launching of the IPC improvement programme – build this into long-term plans.
 - Think about succession planning – improvement cannot rely solely on one person. Encourage leaders/champions to coach others before leaving.
 - Meet new leaders and present the story of your improvement, highlighting successes and benefits for primary care facility.
 - Encourage leaders/champions to publicize their support for IPC using newsletters or other channels.
- **Potential barrier 2: IPC fatigue – other perceived priorities emerge.**
- **Potential solutions**
 - Continue to connect with and link IPC improvements with AMR, quality and safety and health service resilience (that is, for preparedness and response to outbreaks and other public health emergencies) to refresh messages to present IPC as a priority and build a strong case for a continued focus on IPC. Emphasize the benefits of IPC implementation and the risks if IPC is no longer prioritized, including financial and human costs.
 - Promote IPC as an important part of regulation and accreditation.
 - Leverage national and international campaigns to ensure IPC maintains a profile, for

example. WHO 5 May SAVE LIVES: Clean Your Hands campaign, World Patient Safety Day, Global Handwashing Day.

- Disseminate information about the programme and its successes to patient and civil society groups and gain their engagement to actively contribute to sustainability.
- Consider the use of twinning partnerships to support IPC improvement.
- Discuss with other IPC teams and committees from other health care facilities to learn how they have overcome IPC fatigue and refreshed their programmes.
- Use the WHO Learning Laboratory IPC/WASH Learning Pod network to pose questions on sustainability and what has worked in other facilities.

Step 5 checklist

At the end of step 5 you should have:

- agreed upon an annual review cycle through the IPC committee;
- developed a long-term (5-year) plan with the IPC committee;
- met with and secured visible long-term commitment to the IPC programme (including regular budget) by health care facility managers and leadership;
- met with champions/opinion leaders to convey thanks and secure ongoing support;
- publicized successes and the IPC vision via internal communication channels, for example, newsletters, podcasts, emails, meetings and one-to-one encounters;
- publicized successes externally to patient/civil society bodies and nongovernmental organizations, for example, through the local radio or newspapers, and make a note of achievements and gaps.

3.2 Hand hygiene improvement in primary care

About this section

- The WHO document Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the 'My five moments for hand hygiene' approach' (5) referred to here as the hand hygiene guide, provide both background evidence and practical examples of the application of hand hygiene principles in situations occurring frequently outside of secondary and tertiary care settings.
- This section summarizes key principles from this source document relevant to primary care and presents a selection of primary care-related examples to support implementation of the WHO Five Moments approach.
- The reader is advised to consult the hand hygiene guide for a comprehensive outline of how to improve hand hygiene in primary care according to the Five Moments approach.
- For ease, Table 3.2 presents a summary of the content of the hand hygiene guide and signposts the reader to content that might be of interest.

Table 3.2. At-a-glance outline of the contents of the hand hygiene guide.

SECTION	BRIEF DESCRIPTION AND RELEVANCE TO PRIMARY CARE	PAGE(S) IN SOURCE DOCUMENT
Introduction and essential notes for the reader	<ul style="list-style-type: none"> • Provides context and background to the development of the guide in the context of WHO's hand hygiene guidelines and associated implementation resources. 	7
1. Objectives	<ul style="list-style-type: none"> • Summarizes three objectives. 	8
2. Definition and scope	<ul style="list-style-type: none"> • Focuses on how the guide addresses practical aspects related to the performance of routine hand hygiene while providing outpatient care. • Importantly, explains that for the purpose of the guide, outpatient care is defined as any care service provided to patients who are not admitted as inpatients to a hospital. 	8
3. Target audience	<ul style="list-style-type: none"> • States that the target audience includes all individuals (usually health care professionals, but also lay persons in some settings) providing health care in outpatient settings, long-term care facilities or at home. 	9
4. Why is hand hygiene important in outpatient care?	<ul style="list-style-type: none"> • Presents the evidence of transmission and infection risk in outpatient care settings and the role of hands in microbial transmission in outpatient care settings. • Focuses on the evidence for hand hygiene practices in outpatient settings. 	10-12
5. Application of the 'My five moments for hand hygiene' approach in outpatient care	<ul style="list-style-type: none"> • Describes the patient zone and health care area concepts in outpatient settings, with visual illustrations • Presents examples of indications for hand hygiene according to each of the Five Moments and explains the when and why. • A synthesis of this section is reproduced below. 	13-17
6. Application of the WHO MMIS and accompanying toolkit in outpatient care	<ul style="list-style-type: none"> • Addresses each of the five elements of the MMIS and their relevance to hand hygiene in the outpatient care setting. • Includes a range of posters within the context of MMIS element 4 (reminders in the workplace). • Sample visuals/posters illustrating hand hygiene in vaccination campaigns, dental care, a paediatric consultation and health care in a residential home are reproduced below. 	18-26



SECTION	BRIEF DESCRIPTION AND RELEVANCE TO PRIMARY CARE	PAGE(S) IN SOURCE DOCUMENT
7. Practical examples of hand hygiene requirements in a broad range of outpatient care settings	<ul style="list-style-type: none"> This important section provides a range of practical examples A standard approach to presenting information on each practical example is used and this is summarized below. Six practical examples considered most relevant to primary care are summarized below: a) public vaccination campaign; b) visit to a general practitioner's office; c) paediatric consultation in a health post; d) consultation in an emergency polyclinic; e) childbirth and delivery assistance (including during labour, at time of delivery and after the departure of mother and child from the delivery area); and e) dental care in a clinic. The example of a public vaccination campaign is reproduced in full below. 	27-61
References	<ul style="list-style-type: none"> List of references. 	62-64
Appendices	<ul style="list-style-type: none"> Appendix 1: Definition of long-term care Appendix 2: Presents three practical examples with strict adherence to the 'My five moments' approach 	65-66

Application of the 'My five moments for hand hygiene' approach in primary care

Five essential moments (indications) when hand hygiene is required during health care delivery have been identified by WHO (Fig. 3.2).

Figure 3.2. 'My five moments for hand hygiene' approach.



The application of the 'My five moments for hand hygiene' (17-19) approach requires an understanding of the key concepts of patient zone, health care area, and critical sites as each of the five hand hygiene indications ('Moments') is defined by the consecutive contacts with the surfaces contained in and between these 'geographical' areas. **The patient zone is defined as including the patient and some surfaces/items in his/her surroundings that are temporarily and exclusively dedicated to him/her (that is, all inanimate surfaces touched by or in direct physical contact with the patient and touched by the HCW while providing care), including the patient's personal belongings.**

Within the **patient zone**, specific sites, so-called 'critical' sites, are associated with the risk of infection. They correspond either to body sites or to medical devices that have to be protected against pathogens (critical sites with infectious risk for the patient), or body sites or medical devices that potentially lead to hand exposure to body fluids and bloodborne pathogens (critical sites with body fluid exposure risk).

The **health care area** corresponds to all physical surfaces outside the patient zone, including other patients and their patient zones, and the wider health care environment. In most settings, the health care area is characterized by the presence of many different microorganisms, including multiresistant pathogens, even if appropriate cleaning is performed. As far as hand hygiene performance is concerned, the geographical distinction between the patient zone and health care area helps to prevent microbial transmission between patients and health care environment contamination. An additional concept critical to the understanding of hand hygiene requirements is the term 'point of care'. Hand hygiene must be performed in association with patient contact and care procedures.

The point of care is exactly where the care action takes place and is defined as **“the place where three elements come together: the patient, the HCW, and care or treatment involving contact with the patient”**.

More details on these concepts can be found in the [WHO Guidelines on Hand Hygiene in Health Care](#) (17) and the [WHO Hand Hygiene Technical Reference Manual](#) (19).

In outpatient settings, particularly in primary care situations, the understanding of these concepts needs **special consideration**. For instance, regarding the patient zone concept explained above: in several cases, no specific space and items are temporarily (over a conceivable time period) dedicated to a patient exclusively in outpatient settings. In these situations, the patient's access to health care is usually limited to a short period of time and the space allocated to care delivery accommodates numerous successive patients. In addition, the time required for actual contamination of the surroundings by the patient's flora remains almost unknown. Under these conditions, the patient zone concept coincides just with the patient him/herself. However, the concept of the patient zone as a geographical area, according to the above definition and including the patient surroundings, applies in some outpatient settings where the patient is placed for a certain time in a dedicated space with dedicated equipment (for example, dialysis settings, rooms for chemotherapy administration, labour and delivery rooms).

A sample of posters are available illustrating the moments for hand hygiene in vaccination campaigns, dental care, a paediatric consultation and health care in a residential home (Figs. 3.3-A-D). These can be used as reminders and to support training and monitoring.

Figure 3.3.A.
 'Your Moments' for hand hygiene: vaccination campaign.



Figure 3.3.B.
 'Your Moments' for hand hygiene: dental care.

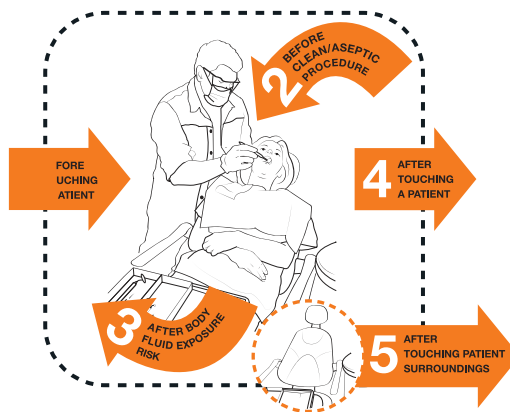


Figure 3.3.C.
 'Your Moments' for hand hygiene: pediatric consultation.

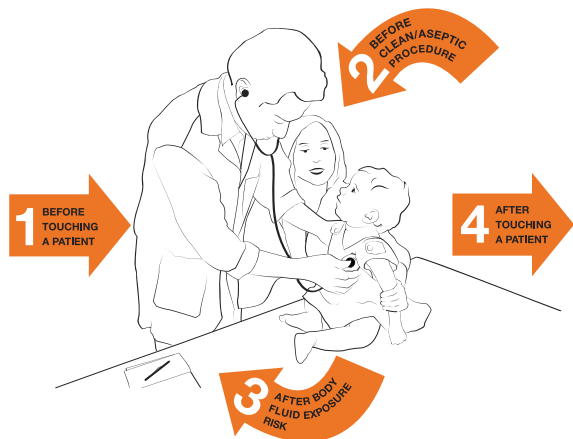
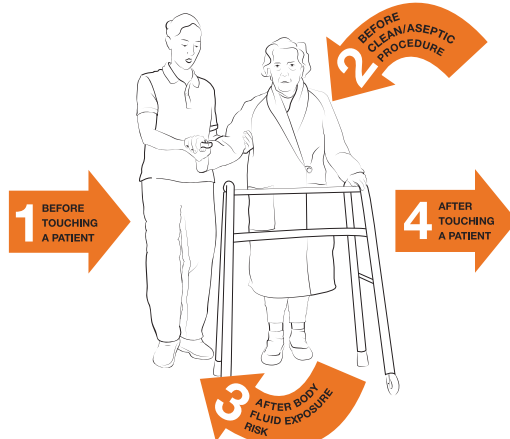


Figure 3.3.D.
 'Your Moments' for hand hygiene: health care in a residential home.



Practical examples of hand hygiene requirements in primary care settings

Practical examples of care situations are provided to show how the 'My five moments for hand hygiene' concept (17-19) translates into practice in specific situations typically occurring in outpatient settings. The aim is to guide the HCW in the best organization of the care sequence and facilitate hand hygiene practice.

These practical examples are not intended to indicate the gold standard for a certain procedure or to present recommendations.

Some examples reflect situations where a large number of patients undergo a care procedure one after the other and thus hand hygiene indications occur with very high frequency in a short time period. In other examples, the care situation is very similar to the hospital setting (for example, dialysis, childbirth delivery in remote areas in low-/middle-income dispensaries). These examples are the basis for acquiring the skills to identify the patient zone and the point of care and the hand hygiene indications and opportunities encountered.

The examples described in the **hand hygiene guide** (5) were developed using an expert core group. The development process is described in detail in the source document. Four criteria were identified that should be considered in the evaluation of the need for hand hygiene during primary care/outpatient care: 1) the potential transmission risk according to the procedure and the infectious agent transmissibility; 2) the potential infection risk for the patient and the HCW; 3) the patient's known or suspected colonization status and susceptibility based on underlying conditions; and 4) feasibility of hand hygiene in specific care situations usually occurring in outpatient settings, taking into account the frequency of the procedure.

A wide range of care procedures are delivered in primary care and outpatient settings. Some do not differ from situations encountered in hospitals, whereas others have specific features as far as hand hygiene is concerned. Some HCWs may work across multiple types of settings. When delivering care to hospitalized patients, HCWs should always practice hand hygiene according to the 'My five moments' approach' (5). In the practical examples proposed in the present document, hand hygiene indications occur according to the same principles. However, based on four criteria identified by experts, minimum requirements for hand hygiene were identified in some very particular care situations (for example, within a high-frequency care flow) with a focus on essential opportunities.

Within the source document/guide, a comprehensive description of multiple practical situations is presented. The guide adopts a standard approach to presenting information on each practical example (Table 3.3).

Table 3.3. Overview of the standard approach used in the source document.

Heading	Summary
Brief explanation	<ul style="list-style-type: none"> A description of a scenario related to the specific practical situation is presented.
Sequence of care	<ul style="list-style-type: none"> A step-by-step description of the sequence of care and where a moment for hand hygiene occurs is presented. Some of the practical examples describe the sequence of care according to <i>minimum requirements</i> for hand hygiene. Where the <i>minimum requirements</i> are presented, the same scenario with the strict application of the 'My five moments' approach is provided in appendix II of the guide.

Heading	Summary
Care sequence features	<ul style="list-style-type: none"> • A table estimates: <ul style="list-style-type: none"> - likely frequency of the sequence per hour - approximate duration of the sequence - number of hand hygiene opportunities per sequence - types of hand contact - use of PPE - use of disposable items - use of sterile items - use of shared items - patient zone - point of care.
Visual representation	<ul style="list-style-type: none"> • A range of visualizations are included according to the practical example.

Of note, the main objective of this section is to focus on helping to understand hand hygiene in primary care. For this reason, the scenarios are kept as simple as possible and gold standard procedures for environmental cleaning and/or device decontamination are not explicitly described in the situations presented. However, all HCWs should bear in mind that hand hygiene efficacy is closely linked to environmental contamination. When shared medical devices and equipment are not decontaminated when recommended (ideally after each patient use) and/or the environment is not cleaned appropriately, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Table 3.4 lists six practical examples that may be encountered in primary care and signposts the reader to the relevant page number within the source document.

Table 3.4. Six practical examples in primary care.

Practical example	Pages in source document
1. Public vaccination campaign	28-29
2. Visit to a general practitioner's office	32-33
3. Paediatric consultation in a health post	34-35
4. Consultation in an emergency polyclinic	36-37
5. Childbirth and delivery assistance including: a) during labour; b) at time of delivery; and c) after the departure of the mother and child from the delivery area	50-53
6. Dental care in a clinic	54-55

The example of a **public vaccination campaign** is provided in the next section for illustration purposes.

Public vaccination campaign

Brief explanation

The setting is a standard consultation room used to vaccinate the population in the context of a public campaign. All the necessary material is within arm's reach of the HCW on a tabletop tray. Individuals come in one after the other in rapid succession to get the vaccine shot. Disposable gloves are not used as not recommended given that the risk of exposure to body fluid is not considered significant (19, 20). The HCW sees individuals in a high-frequency sequence while performing a number of tasks in a systematic flow (picking up material for the shot, performing the injection, recording). No space or equipment is dedicated to the person receiving the injection during the care sequence. The patient zone corresponds to the individual only; the point of care is exactly where the injection is performed.

Sequence of care according to *minimum requirements for hand hygiene*

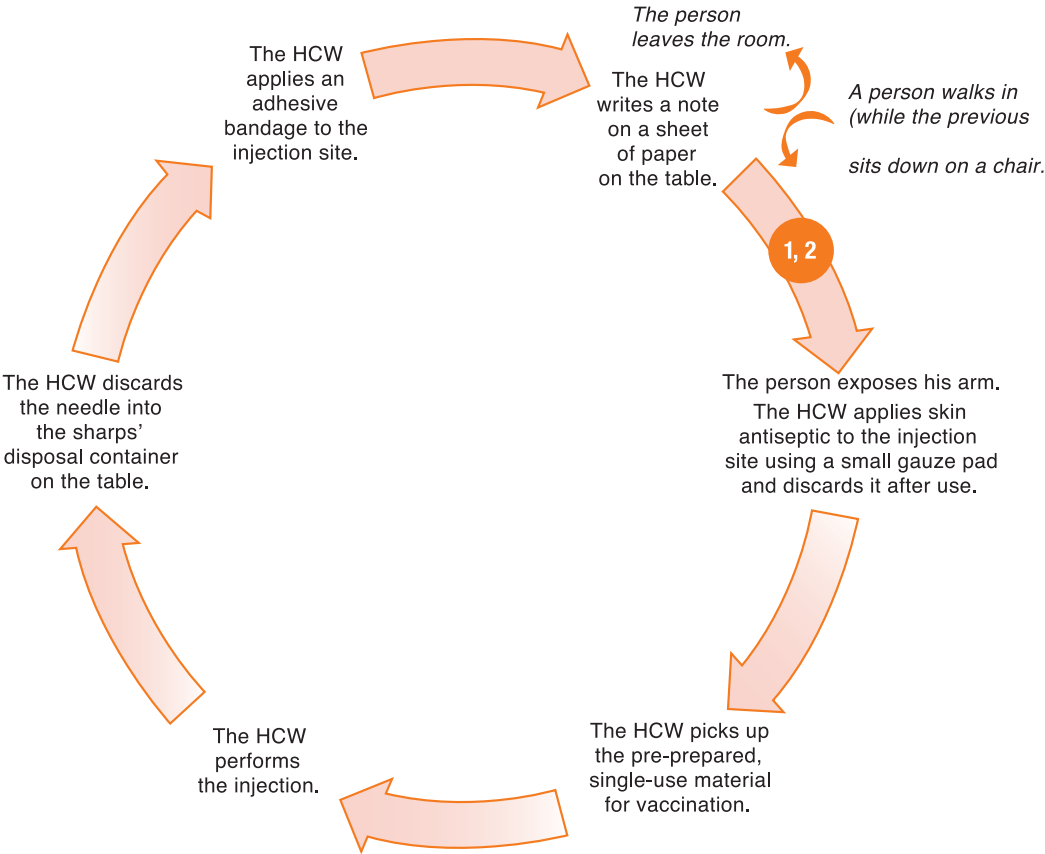
- A. A person walks in (while the previous one walks out) and sits down on a chair. The HCW performs hand hygiene (Moments 1 & 2 are merged into one opportunity to meet *minimum requirements*).
- B. The person exposes his arm, the HCW applies the skin antiseptic to the injection site using a small gauze pad and discards it after use.
- C. The HCW picks up the pre-prepared, single-use material for vaccination.
- D. The HCW performs the injection.
- E. The HCW discards the needle into the sharps' disposal container on the table.
- F. The HCW applies an adhesive bandage to the injection site.
- G. The HCW writes a note on a sheet of paper on the table.
- H. The person gets up and leaves the room (while the next one walks in).
- I. HCW performs hand hygiene (Moment 4)*

* If the sequence occurs as described with no breaks and under normal conditions (for example, no known outbreak situation), the performance of the hand hygiene action will be performed once between patients (Moments 4 and 1 & 2 are merged into one opportunity to meet *minimum requirements*).

Care sequence features

Likely frequency of the sequence per hour	Approximately 30
Duration of the sequence	Very short, approximately 2 minutes
Number of hand hygiene opportunities per sequence according to minimum requirements	2 (or 1 when the sequence is repeated without interruption)
Types of hand contact	Skin/non-intact skin
Glove use	No
Use of personal protective equipment	No
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
<i>Patient zone</i>	The patient
<i>Point of care</i>	Where the injection takes place

Fig. 3.4. Public vaccination campaign: hand hygiene opportunities according to *minimum requirements* for hand hygiene.



3.3 Resource considerations for hand hygiene improvement in primary care

About this section

- The WHO document *Resource considerations for investing in hand hygiene improvement in health care facilities* (6) presents the resources needed for investing in hand hygiene improvement at each level of the health system using the MMIS approach.
- It presents inputs (such as equipment, supplies and activities) required to estimate the investments needed to implement and sustain a comprehensive hand hygiene programme based on the MMIS, and to support HCWs to perform hand hygiene at the point of care and at other important times to ensure safe, high quality care. Where available, costing and other relevant tools that can aid in the estimation of required resources are listed.
- This section extracts key content from [this document](#) to support those involved in developing and implementation of hand hygiene improvement in primary care.
- The reader is advised to consult the source document for a comprehensive outline of resource considerations across all levels of health care
- For ease, Table 3.5 presents a summary of the content of the source document and signposts the reader to content that might be of interest.

Table 3.5. At a glance outline of the contents of the Resource considerations document.

SECTION	BRIEF DESCRIPTION AND RELEVANCE TO PRIMARY CARE	PAGE(S) IN SOURCE DOCUMENT
Part 1 Introduction	<ul style="list-style-type: none"> • Describes the focus and purpose of the document and the intended audience. • Presents some background information and a brief overview of the MMIS, including how health facilities can understand their situation and address all five elements of the MMIS – a modified version of this is provided below. • Instructs the reader how to use the document – a modified version of this is reproduced below. 	1-4
Part 2 Needs and resource considerations for implementation of the MMIS	<ul style="list-style-type: none"> • Includes five tables addressing resource considerations according to each element of the MMIS. • Provides prompts for those working at the national, subnational and facility levels by supporting them to estimate the associated costs. • The tables highlight what should be in place for each of the five elements of the MMIS and the associated resource considerations – both set-up and ongoing – for primary and secondary/tertiary care settings. • They also list tools to support estimation of required. • The primary care content from the tables are reproduced below in full. 	5-14
References	<ul style="list-style-type: none"> • Lists 14 references. 	15
Annex	<ul style="list-style-type: none"> • A visual summary of the MMIS 	16

3.3.1 Recap on the MMIS in the context of required resources and investment

Investment in all the drivers and facilitators of hand hygiene action in health care to ensure that it occurs at the point of care and other critical moments requires a [MMIS](#) (15), which is at the core of WHO's implementation models for hand hygiene and IPC programmes. The MMIS comprises five synergistic elements, each of which is essential and complementary. They must all be in place to some degree as part of interventions to achieve outcome improvements and optimal hand hygiene behavioural change.

The focus of this section is on the **resource considerations** for investing in hand hygiene improvement in primary care using the MMIS approach. It presents the inputs (such as equipment, supplies and activities) required to:

- estimate the investments needed to implement and sustain a comprehensive hand hygiene programme based on the MMIS; and
- support health workers to perform hand hygiene at the point of care and at other important times in order to provide safe, high quality care.

Where available, costing and other relevant tools that can aid in the estimation of required resources are listed.

The MMIS has proved to be highly effective, leading to a significant improvement in hand hygiene compliance and other key hand hygiene indicators, including a reduction in AMR (2, 17, 21, 22), as well as having played an important role in contributing to stop outbreaks. Multimodal hand hygiene improvement programmes are also highly cost saving (23).

Implementation of the MMIS requires resources at the initial planning and implementation phase (including capital/infrastructure and ongoing costs), as well as for assessing its impact and ongoing costs over a multi-year period. This is needed to sustain hand hygiene interventions and behaviours that will help prevent HAI and AMR as part of an IPC programme.

3.3.2 How a primary care facility can understand its situation and address all five elements of the MMIS

The WHO HHSFAF (12) is a **diagnostic tool** that provides a situation analysis of the state of the hand hygiene programme/activities. It was originally developed for acute health care facilities, **according to the five elements of the MMIS**. However it has the potential to provide key information at the primary care level if used on a regular basis and to support decision-making on the actions and associated resources required for hand hygiene improvement. The HHSFAF provides information on the extent to which each of the five elements of the MMIS are being met. It therefore supports incremental improvement and, inherently, behaviour change. It has been used to inform three global surveys on hand hygiene improvement based on the MMIS (24).

The MMIS is relevant to all countries, but the approach and the required inputs will be different in each individual case, guided by the results derived from the HHSFAF. The percentage of resources to be allocated to each of the five elements of the MMIS depends on the local situation. Taking the **example of system change**, weaknesses/deficits – such as lack of access to hand hygiene products – can be identified using this tool, irrespective of the country income level.

- **In least-developed countries** where one-half of health care facilities lack basic water services, 'system change' to provide hand hygiene facilities will be the first element of the MMIS to be prioritized. Weaknesses will likely to relate to the water infrastructure and costs will be centred around this. Costs in this situation should also immediately address ABHR, which can support hand hygiene improvement while water services are being addressed, as well as facilitating hand hygiene at the point of care on an ongoing basis. Local production of ABHR formulations in national, subnational or hospital pharmacies or by private companies is strongly encouraged (as recommended by WHO guidance), especially if commercial options are limited or too costly (25).
- **In many low- and middle-income countries**, system change weaknesses have been found to include lack of continuous availability of clean water, soap and ABHR, as well as maintenance

issues, such as broken taps, missing handles and leaking pipes (26).

- **In high-income countries**, a continuous supply of clean running water is likely to be the norm, yet weaknesses may still be present, such as a lack of ABHR dispensers at each point of care or systems to replenish stocks of ABHR regularly.

All these weaknesses/deficits negatively affect the ability of HCWs to clean their hands at the point of care, but at a different order of magnitude. In addition, all elements of the MMIS are equally important and thus, each one should be assessed and improved in different aspects, depending on the local situation, including resources available and cultural factors. The HHSFAF again enables plans to be developed to bridge these gaps and achieve incremental improvements.

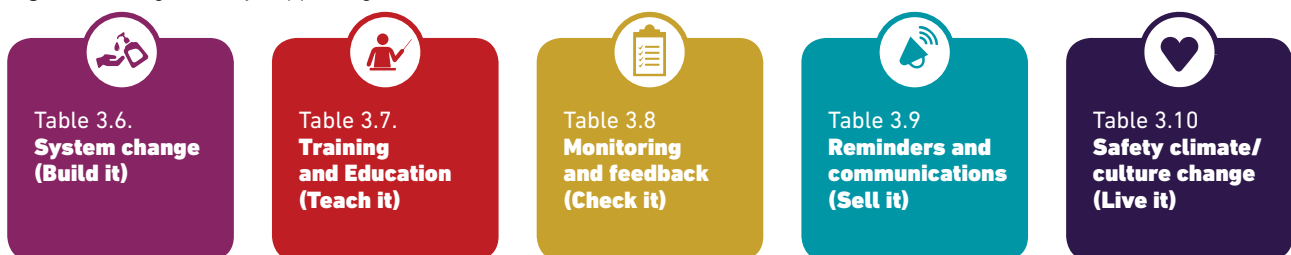
In situations such as the least-developed countries example above, the majority of costs will initially be on system change. However, even at the outset, resource considerations should be given to the other elements of the MMIS: each element must be addressed to support the requisite **long-term behaviour change** in the target audience of the hand hygiene programme.

The precise composition of IPC teams on the ground will also vary by country. The IPC team composition will be important to take into account when considering resource requirements.

Using the resource consideration tables

For the intended audience to both consider and estimate all resources required, Tables 3.6–3.10 provide prompts for those working in primary care by supporting them to estimate the associated costs. The tables highlight what should be in place for each of the five elements of the MMIS and the associated resource considerations – both set-up and ongoing for primary care settings. They also list tools to support estimation of required resources, including costing tools¹ where available. WHO's *CHOosing Interventions that are Cost-Effective (WHO-CHOICE)* costing interventions' templates (CostIt)² (27) are not included, but the intended audience might find these a useful tool to consult at the start of the process of development and implementation of hand hygiene improvement programmes. Each table concludes with a number of other supporting actions, which is summarized below in Fig. 3.5.

Figure 3.5. Fig. 3.5. Key supporting actions included in Tables 3.6–3.10.



Box 3.3. Content of the tables.

What the tables contain

For each element of the MMIS the tables present:

- what should be in place
- resource considerations (set-up and ongoing)
- tools to support estimation of required resources
- other supporting actions.

¹ Note, the tools included across Tables 3.6-3.10 are those that support cost estimates to be made in relation to hand hygiene improvement. Academic studies on the costing or cost-effectiveness of hand hygiene interventions are not included as "tools".

² CostIt software helps the user calculate the economic costs of interventions, but it can also be used to estimate financial costs. It provides a set of separate templates for reporting and analysis of costs at the programme, hospital and primary health facility.


Table 3.6. System change (Build it)
Goal: HCWs, patients and visitors are able to access hand hygiene infrastructure and products
WHAT SHOULD BE IN PLACE
Human resources

- A trained IPC officer at the next administrative level (for example, district) to support primary care facilities to ensure that all the infrastructures listed below are reliably/sustainably in place.

Water supply

- Supply available from a source on the premises, for example, a deep borehole or a treated, safely managed piped water supply.
- Soap and towels or other hand drying methods
- At the point of care
- Where PPE is put on/taken off
- Where health care waste is handled
- Within 5 metres of toilets, entrances and exits of health care facilities, waiting and dining rooms, and other public areas.

ABHR

- At the point of care
- Within 5 metres of toilets
- Where PPE is put on/taken off
- Where health care waste is handled
- At entrances and exits of health care facilities, waiting and dining rooms, and other public areas.

RESOURCE CONSIDERATIONS (SET-UP AND ONGOING)

- Numbers and types of personnel required to ensure hand hygiene products are available, operational and maintained where required.

At the next administrative level (for example, district)

- Quantities and types of materials and equipment for installation, operation and maintenance of a high quality water supply
- Numbers and types of personnel for installation and operation and maintenance of water supply
- Quantity and unit costs of soap, towels and dispensers
- Quantity and unit costs of ABHR
- Costs associated with production and distribution – local, central or commercial – of ABHR
- Costs associated with waste management/ recycling of ABHR containers
- Handling costs – for example, tariffs/customs associated with ABHR and other hardware
- Ability to produce and make available policies and procedures.

According to the WHO/UNICEF coverage indicators, to achieve **basic services**, water should be available from an improved source on the premises, and hygiene should be functional and available at points of care and within 5 metres of toilets (with water and soap and/or ABHR) (28).

Tools to support estimation of required resources

- Hand hygiene self-assessment framework 2010. Geneva: World Health Organization; 2010; [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6).
- A guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009; <https://www.who.int/publications/i/item/a-guide-to-the-implementation-of-the-who-multimodal-hand-hygiene-improvement-strategy>.
- This includes template action plans (also available at: <https://www.who.int/campaigns/world-hand-hygiene-day/clean-hands-2012>). See section II.1 for a full list of resources.
- Global progress report on water, sanitation and hygiene in health care facilities: fundamentals first. Chapter 6: An investment opportunity. Geneva: World Health Organization; 2020; <https://apps.who.int/iris/handle/10665/337604>.
- Alcohol-based handrub planning and costing tool. Geneva: World Health Organization; 2010; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/tools-and-resources>.
- Ward infrastructure survey. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Soap/handrub consumption survey. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/254910>.
- Guide to local production: WHO-recommended handrub formulations. Geneva: World Health Organization;

2010; <https://www.who.int/publications/i/item/WHO-IER-PSP-2010.5>.

- Technical guide for handwashing facilities in public places and buildings. In: WaterAid [website]. London, UK: WaterAid; 2021; <https://washmatters.wateraid.org/publications/technical-guide-for-handwashing-facilities-in-public-places-and-buildings>.
- Aide-memoire: Respiratory and hand hygiene. In: Infection prevention and control: guidance to action tools. Copenhagen: WHO Regional Office for Europe; 2021; <https://apps.who.int/iris/handle/10665/341418>.

Other supporting actions

- Use of the HHSAF to understand the current situation and identify local gaps regarding system change.
- Collection of information on:
 - number of beds/points of care to be equipped with hand hygiene facilities (and other critical areas, such as medication preparation spaces, putting on/taking off of PPE, etc.)
 - number of HCWs and associated salaries
 - number of anticipated hand hygiene opportunities per time period (based on workflow analysis for example)
 - people responsible for ensuring ongoing operation and maintenance of systems
 - local producers of ABHR and regional, national and international companies and distributors.
- Development of a hand hygiene improvement action plan using WHO's guide to implementation and template action plans



Table 3.7. Training and education ('teach it')

Goal: HCWs, patients and visitors are trained on why and when hand hygiene is needed and how to perform it appropriately

WHAT SHOULD BE IN PLACE

Human resources

- A trained IPC link person with dedicated (part-time) availability to deliver training.

Programmes

- A funded programme for all HCWs (at all levels) to be trained on 'why', 'when' and 'how' to ensure hand hygiene, at least annually,
- Training materials, as necessary

RESOURCE CONSIDERATIONS (SET-UP AND ONGOING)

- Numbers and types of personnel required to undertake needs assessments and training, including who, how many, and where they will be sourced – this role may be included within an IPC programme budget and may not be listed as a separate cost, depending on the setting.
- Personnel required to update training materials.
- Personnel to determine whether training will be delivered locally or centrally (for example, through online mechanisms).
- Personnel required to translate/adapt training materials.
- Quantity and type of training materials, including a schedule to be made widely available (paper or electronic) and printing.
- Training venue.
- Per diem – for example, for travel required to deliver/receive training.

Tools to support estimation of required resources

- Hand hygiene self-assessment framework 2010. Geneva: World Health Organization; 2010; [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6).
- Guide to implementation: a guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009; <https://www.who.int/publications/i/item/a-guide-to-the-implementation-of-the-who-multimodal-hand-hygiene-improvement-strategy>. This includes template action plans (also available at: <https://www.who.int/campaigns/world-hand-hygiene-day/clean-hands-2012>). See sections II.2 and III.1 for a full list of resources.
- Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/254910>.
- Open WHO training courses (including those on standard precautions and hand hygiene). Infection

Prevention and Control. In: OpenWHO [website]. Geneva: World Health Organization; 2021; <https://openwho.org/channels/ipc>.

- Education session for trainers, observers and health workers. Geneva: World Health Organization; 2018; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/training-tools>).
- Hand hygiene training films and slides accompanying the training films. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/training-tools>.

Other supporting actions

Use of the HHSAF to understand the current situation and identify gaps regarding training and education.

- Collection of information on:
 - number and type of HCWs to be trained, and associated salaries
 - People responsible for ensuring both up-to-date materials and delivery of training
 - internet access
 - informatics requirements and/or other practical props
 - printing requirements
 - overheads
 - training room/venue costs,
- Development of a training action plan using WHO's Guide to implementation and template action plans.



Table 3.8. Monitoring and feedback ('check it')

Goal: HCWs are monitored and given feedback on their compliance with best practices care and highlights of good performance and areas for improvement

WHAT SHOULD BE IN PLACE

Human resources

- A trained IPC officer at the next administrative level (for example, district) to support primary care facilities to monitor hand hygiene structural and process indicators.

RESOURCE CONSIDERATIONS (SET-UP AND ONGOING)

At the next administrative level (for example, district)

- Numbers and types of personnel (who, how many, and where they will be sourced) required to undertake:
 - periodic or continuous observational monitoring and feedback (at least annually) – this role may be included within an IPC programme budget and may not be listed as a separate cost, depending on the setting;
 - periodic use of the WHO HHSAF;
 - data entry, report writing and feedback to stakeholders and managers.
- Quantity and types of tools and supportive materials for monitoring IPC structural and process indicators and presenting results – for example, printing if paper forms/reports used; informatics requirements if electronic data used, including internet access.
- Per diem – for example, for travel required to deliver/receive training – this role may be included within an IPC programme budget and may not be listed as a separate cost, depending on the setting.

Tools to support estimation of required resources

- Hand hygiene self-assessment framework 2010. Geneva: World Health Organization; 2010; [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6).
- Guide to implementation: a guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009; <https://www.who.int/publications/i/item/a-guide-to-the-implementation-of-the-who-multimodal-hand-hygiene-improvement-strategy>. This

includes template action plans (also available at: <https://www.who.int/campaigns/world-hand-hygiene-day/clean-hands-2012>). See section II.3 for a full list of resources.

- Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/254910>.
- Hand hygiene technical reference manual. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Observation form. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Data entry analysis tools. Geneva: World Health Organization; 2009; <https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/monitoring-tools>.
- Protocol for surgical site infection surveillance with a focus on settings with limited resources. Geneva: World Health Organization; 2018; <https://www.who.int/publications/i/item/protocol-for-surgical-site-infection-surveillance-with-a-focus-on-settings-with-limited-resources>.

Other supporting actions

- Use of the HHSAF to understand the current situation and identify gaps regarding monitoring and feedback.
- Collection of information on:
 - number of wards/units/primary health facilities to be monitored
 - number and types of HCWs to be trained, and associated salaries
 - informatics requirements
 - printing requirements
 - training rooms/venue costs.
- Development of a hand hygiene monitoring action plan (outlining units to be surveyed) using WHO's guide to implementation and template action plans.

Table 3.9. Reminders and communications ('sell it')

Reminders and communications

WHAT SHOULD BE IN PLACE

Human resources

- Trained IPC link person with responsibility for ensuring reminders and communications are in place.

RESOURCE CONSIDERATIONS (SET-UP AND ONGOING)

At the next administrative level (for example, district)

- Numbers and types of personnel (who, how many and where they will be sourced) required to:
 - display/refresh posters and other communication methods on why, when and how to ensure hand hygiene.
 - distribute hand hygiene leaflets and other communications – for example, mailing costs.
 - undertake audits of posters/reminders.
 - support periodic local, national and international hand hygiene campaigns.
- Quantity and types of posters/leaflets and other communications, messages and requirements for adaptation and printing (including translation to local languages).
- Internet access.

Tools to support estimation of required resources

- Hand hygiene self-assessment framework 2010. Geneva: World Health Organization; 2010; [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6).
- Guide to implementation: a guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009; <https://www.who.int/publications/i/item/a-guide-to-the-implementation-of-the-who-multimodal-hand-hygiene-improvement-strategy>. This includes template action plans (also available at: <https://www.who.int/campaigns/world-hand-hygiene-day/clean-hands-2012>). See section II.4 for a full list of resources.

- Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/254910>.

Other supporting actions

- Use of the HHSAF to understand the current situation and identify gaps regarding reminders and communications.
- Collection of information on:
 - number of wards/units/primary care facilities where posters will be displayed
 - informatics requirements
 - printing requirements
 - translation requirements.
- Development of a hand hygiene reminders and communications action plan (outlining printing requirements and overheads) using WHO's guide to implementation and template action plans.



Table 3.10. Safety climate/culture change ('live it')

Goal: HCWs and patients are nurtured and supported in a milieu that values hand hygiene, including allocation of a budget for hand hygiene

WHAT SHOULD BE IN PLACE

Human resources

- A trained IPC officer at the next administrative level (for example, district) to secure leadership commitment and action on hand hygiene improvement within primary care.
- A trained IPC link person with dedicated (part-time) availability to advocate for hand hygiene.

RESOURCE CONSIDERATIONS (SET-UP AND ONGOING)

Proportion of costs listed for the next administrative level (for example, district) (see secondary and tertiary care row, below)

- Includes costs of hand hygiene coordinators/project managers overseeing improvement at the primary care level, and leadership time to be a role model for and champion hand hygiene.

Tools to support estimation of required resources

- Hand hygiene self-assessment framework 2010. Geneva: World Health Organization; 2010; [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/hand-hygiene/monitoring/hhsa-framework-october-2010.pdf?sfvrsn=41ba0450_6).
- Guide to implementation: a guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009; <https://www.who.int/publications/i/item/a-guide-to-the-implementation-of-the-who-multimodal-hand-hygiene-improvement-strategy>. This includes template action plans (also available at: <https://www.who.int/campaigns/world-hand-hygiene-day/clean-hands-2012>) and template letters to advocate hand hygiene to managers and to communicate hand hygiene initiatives to managers. See section II.5 for a full list of resources.
- Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2017; <https://apps.who.int/iris/handle/10665/254910>.

Other supporting actions

- Use of the HHSAF to understand the current situation and identify gaps regarding safety climate/culture change.
- Collection of information on:
 - key stakeholders (leaders/champions/role models) to be targeted, and associated salaries
 - informatics requirements
 - printing requirements.
- Development of a hand hygiene engagement action plan (outlining units to be surveyed) using WHO's guide to implementation and template action plans.



GLOSSARY OF KEY TERMS AND DEFINITIONS

Alcohol-based handrub: An alcohol-based preparation designed for application to the hands to inactivate microorganisms and/or temporarily suppress their growth. Such preparations may contain one or more types of alcohol and other active ingredients with excipients and humectants.

Source: WHO Guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://apps.who.int/iris/handle/10665/44102>, accessed 23 August 2021).

Cleaners (also known as environmental cleaning staff or environmental services' technicians): individuals responsible for performing environmental cleaning in health care facilities who play a key role in maintaining a clean and/or hygienic environment that facilitates practices related to the prevention and control of health care-associated infection.

Cohorting: Grouping of patients who are colonized or infected with the same resistant organism with the aim to confine their care to one area and prevent contact with other susceptible patients (for example, all patients infected or colonized with a carbapenem-resistant Enterobacteriaceae in a specific cohort and all patients colonized with methicillin-resistant *Staphylococcus aureus* in a different cohort). Cohorts are created based on clinical diagnosis, microbiological confirmation with available epidemiology, and the mode of transmission of the infectious agent.

Cohorting is reserved for situations where there are insufficient single rooms or where the cohorting of patients colonized or infected with the same pathogen is a more efficient use of hospital rooms and resources. Dedicated equipment, toilets and staff should be used for patients within the cohorted area for the required time duration.

Sources: (1) Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings (<https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>, accessed 23 August 2021); and (2) Guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* in health care facilities. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/259462>, accessed 23 August 2021).

Decontamination of medical devices: Removes soil and pathogenic microorganisms from objects so they are safe to handle, subject to further processing, use or discard (see also Reprocessing).

Source: Decontamination and reprocessing of medical devices for health-care facilities. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/250232>, accessed 20 August 2021).

District health system (a): A network of primary care health facilities that deliver a comprehensive range of promotive, preventive and curative health care services to a defined population with active participation of the community and under the supervision of a district hospital and district health management team. (b) A network of organizations that provides, or makes arrangements to provide, equitable, comprehensive and integrated health services to a defined population and is willing to be held accountable for its clinical and economic outcomes and for the health status of the population that it serves.

Source: Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund; 2020 (<https://apps.who.int/iris/handle/10665/337641>, accessed 20 August 2021).

Or

District level refers to a second level administrative division that has jurisdiction over an urban/rural area that can cover several municipalities.

Source: https://www.euro.who.int/_data/assets/pdf_file/0006/421944/Glossary-web-171219.pdf, accessed 23 August 2021.

Hand hygiene: A general term referring to any action of hand cleansing, that is, the action of performing hand hygiene for the purpose of physically or mechanically removing dirt, organic material, and/or microorganisms.

Source: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://apps.who.int/iris/handle/10665/44102>, accessed 23 August 2021).

Health worker: All people primarily engaged in actions with the primary intent of enhancing health. Examples are: nursing and midwifery professionals, doctors, cleaners, other staff who work in health facilities, social workers, and community health workers, etc.

Source: The World Health Report 2006 - working together for health. Geneva: World Health Organization; 2006 (<https://apps.who.int/iris/handle/10665/43432>, accessed 20 August 2021).

Primary health care facilities: Facilities that provide outpatient services, family planning, antenatal care, maternal, newborn and child health services (including delivery), for example, health centres, health posts and small district hospitals.

Source: Water and sanitation for health facility improvement tool (WASH FIT). Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/254910>, accessed 23 August 2021).

Primary, secondary and tertiary hospitals:

- **Primary-level hospital:** Few specialties—mainly internal medicine, obstetrics and gynaecology, paediatrics and general surgery, or just general practice; limited laboratory services available for general, but not specialized, pathological analysis.
- **Secondary-level hospital:** Highly differentiated by its function with 5 to 10 clinical specialties; size ranges from 200 to 800 beds; *often referred to as a provincial or district hospital.*
- **Tertiary-level hospital:** Highly specialized staff and technical equipment, for example, cardiology, intensive care unit and specialized imaging units; clinical services highly differentiated by function; may have teaching activities; size ranges from 300 to 1500 beds; often referred to as a teaching or university or regional hospital.

Source: Disease control priorities in developing countries. Geneva: World Health Organization; 2008 (<https://www.who.int/management/facility/ReferralDefinitions.pdf>, accessed 23 August 2021).

Improved sanitation facilities: Toilet facilities that hygienically separate human excreta from human contact. Examples include flush/pour flush to a piped sewer system, septic tank or pit latrine, ventilated pit latrine, pit latrine with slab or composting toilet.

Source: WHO/UNICEF. Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/275783>, accessed 23 August 2021).

Improved water source: Defined by the WHO/UNICEF Fund Joint Monitoring Programme as a water source that by its nature of construction adequately protects the source from outside contamination, particularly fecal matter. Examples include public taps or standpipes, protected dug wells, tube wells, or boreholes.

Source: Progress on sanitation and drinking water. 2015 update and Millennium Development Goals assessment. WHO/UNICEF; 2015 (https://www.unicef.org/publications/index_82419.html, accessed 23 August 2021).

Infection prevention and control (IPC) minimum requirements: IPC standards that should be in place at both national and health facility level to provide minimum protection and safety to patients, health care workers and visitors, based on the WHO core components for IPC programmes. The existence of these requirements constitutes the initial starting point for building additional critical elements of the IPC core components according to a stepwise approach based on assessments of the local situation.

Source: *Minimum requirements for infection prevention and control programmes*. Geneva: World Health Organization; 2019 (<https://www.who.int/publications/i/item/9789241516945>, accessed 23 August 2021).

Infection prevention and control professional (IPCP): Health care professional (medical doctor, nurse, or other health-related professional) who has completed a certified postgraduate IPC training course, or a nationally or internationally recognized postgraduate course on IPC, or another core discipline including IPC as a core part of the curriculum as well as IPC practical and clinical training.

Source: *Core competencies for infection prevention and control professionals*. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/9789240011656>, accessed July 29 2021), and adapted from (1) *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/251730>, accessed 10 September 2020); and (2) *Minimum requirements for infection prevention and control programmes* Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/330080>, accessed July 29 2021).

IPC focal point: IPC professional (according to the above definition) appointed to be in charge of IPC at the national, sub-national or facility/organization level.

Source: *Core competencies for infection prevention and control professionals*. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/9789240011656>, accessed July 29 2021), and adapted from (1) *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/251730>, accessed 10 September 2021); and (2) *Minimum requirements for infection prevention and control programmes*. Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/330080>, accessed July 29 2021).

IPC link person: Nurse or doctor (or other health professional) in a ward or within the facility (for example, staff working in clinical services such as intensive care unit or maternal and neonatal care, or water, sanitation and hygiene or occupational health professionals) who has been trained in IPC and links to an IPC focal point/team at a higher level in the organization (for example, IPC focal point/team at the facility or district level). IPC is not the primary assignment of this professional but, among others, he/she may undertake tasks in support to IPC, including for example supporting implementation of IPC practices; providing mentorship to colleagues; monitoring activities; and alerting on possible infectious risks.

Source: *Minimum requirements for infection prevention and control programmes*. Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/330080>, accessed July 29 2021).

IPC committee: A multidisciplinary group with interested stakeholders across the facility, which interacts with and advises the IPC team. For example, the IPC committee could include senior facility leadership; senior clinical staff; leads of other relevant complementary areas, such as biosafety, pharmacy, microbiology or clinical laboratory, waste management, water, sanitation and hygiene services and quality and safety, where in place.

Source: *Infection prevention and control assessment framework (IPCAF)*. Geneva: World Health Organization (<https://apps.who.int/iris/handle/10665/330072>, accessed 23 August 2021).

IPC structural indicators: Appropriate clean and hygienic environment, water, sanitation and hygiene services and availability of materials and equipment for IPC, in particular for hand hygiene, including financial, human and information resources compatible with standards set out by government authorities or other bodies responsible for the control and prevention of health care-associated infections.

Source: *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/251730>, accessed 23 August 2021).

IPC process indicators: Measurement of compliance with IPC activities currently used within the facility and the presence of IPC policies, procedures and protocols. Hand hygiene is an essential process indicator to be monitored.

Source: Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/251730>, accessed 23 August 2021).

Integrated health services delivery network: A network of organizations that provides or makes arrangements to provide, equitable, comprehensive and integrated health services to a defined population and is willing to be held accountable for its clinical and economic outcomes and for the health status of the population that it serves.

Source: Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund; 2020 (<https://apps.who.int/iris/handle/10665/337641>, accessed 20 August 2021).

Multimodal improvement strategy (MMIS): The strategy comprises five synergistic elements, each of which is essential and complementary. They must all be in place to some degree as part of interventions to achieve outcome improvements and optimal IPC behavioural change. The MMIS is grounded in behavioural science and incorporates different constructs of multiple behavioural models, including the Health Belief Model and the Theory of Planned Behaviour. These models reinforce the need for the five elements that comprise the strategy: 1) system change; 2) training and education; 3) monitoring and feedback; 4) reminders in the workplace/communications; and 5) safety climate/culture change. To aid understanding, these MMIS elements can be simplified to just five words: 'build', 'teach', 'check', 'sell' and 'live'.

Source: Adapted from: Resource considerations for investing in hand hygiene improvement in health care facilities. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/341128>, accessed 29 July 2021).

Patient zone: Concept related to the 'geographical' visualization of key moments for hand hygiene. It contains the patient X and his/her immediate surroundings. This typically includes the intact skin of the patient and all inanimate surfaces that are touched by or in direct physical contact with the patient, such as the bed rails, bedside table, bed linen, infusion tubing and other medical equipment. It also contains surfaces frequently touched by health care workers while caring for the patient, such as monitors, knobs and buttons, and other 'high frequency' touch surfaces.

Source: WHO Guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://apps.who.int/iris/handle/10665/44102>, accessed 20 August 2021).

Personal protective equipment (PPE): Specialized clothing or equipment worn to protect the health worker or any other person from infection, that is, mask, eye protection, gowns, gloves, as part of standard and transmission-based precautions (droplet/contact/airborne). Although the use of PPE is the most visible control used to prevent the spread of infection, it is only one of the IPC measures and should not be relied upon as a primary prevention strategy. For example, in the absence of hand hygiene, effective administrative and engineering controls, PPE has limited benefit.

Source: Adapted from: Infection prevention and control: guidance to action tools. Copenhagen: WHO Regional Office for Europe; 2021 (<https://apps.who.int/iris/handle/10665/341107>, accessed 20 August 2021).

Point of care: The place where three elements come together: the patient, the health care worker and care or treatment involving contact with the patient or his/her surroundings (within the patient zone).

Source: WHO Guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://apps.who.int/iris/handle/10665/44102>, accessed 23 August 2021).

Protocol: Detailed plan of a scientific or medical experiment, treatment or procedure.

Primary care: A key process in the health system that supports first-contact, accessible, continued, comprehensive and coordinated patient-focused care.

Source: Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund; 2020 (<https://apps.who.int/iris/handle/10665/337641>, accessed 29 July 2021).

Primary health care: A whole-of-society approach to health that aims to maximize the level and distribution of health and well-being through three components: (a) primary care and essential public health functions as the core of integrated health services; (b) multisectoral policy and action; and (c) empowered people and communities.

Source: Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund, 2020 (<https://apps.who.int/iris/handle/10665/337641>, accessed 29 July 2021).

Quality health care: health care that is effective, safe, effective, people-centred, timely, efficient, equitable and integrated.

Source: Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund, 2020 (<https://apps.who.int/iris/handle/10665/337641>, accessed 29 July 2021).

Reprocessing of medical devices: All steps that are necessary to make a contaminated reusable medical device ready for its intended use. These steps may include cleaning, functional testing, packaging, labelling, disinfection and sterilization.

Source: Decontamination and reprocessing of medical devices for health care facilities. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/250232>, accessed 23 August 2021).

Standard operating procedure: Set of step-by-step instructions compiled by an organization to help workers carry out routine operations in the most effective manner.

Standard precautions: The minimum standard (also described as the gold standard) for all patients at all times, irrespective of the diagnosis. They are based on risk assessment and logical practices, as well as the appropriate use of PPE to protect health care providers from infection and prevent the spread of infection from patient to patient. Standard precautions include: hand hygiene; use of PPE; prevention of needlestick or sharps' injuries; adherence to respiratory hygiene/cough etiquette; environmental cleaning; handling of linen/laundry; waste disposal; appropriate patient placement and health care worker safety.

Source: Implementation manual to prevent and control the spread of carbapenem-resistant organisms at the national and health care facility level. Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/312226>, accessed 20 August 2021).

Transmission-based precautions: Additional measures focused on the particular mode of transmission of the microorganism (contact, droplet, or airborne) and always used in addition to standard precautions. They are grouped into categories according to the route of transmission of the infectious agent. Transmission-based precautions should be applied when caring for patients with known infection, patients who are colonized with an infectious organism, and asymptomatic patients who are suspected of/under investigation for colonization or infection with an infectious microorganism.

Source: The Northern Ireland Regional Infection and Prevention Control Manual. Transmission-based precautions. Updated 2015. Belfast: Public Health Agency; 2015 (<https://www.niinfectioncontrolmanual.net/transmission-based-precautions>, accessed 23 August 2021).

Water quality: The quality of water is affected by microbial, chemical and radiological aspects, with microbial aspects constituting the principle concern for infection control in health care settings. Water in health care facilities should not present a risk to health from pathogens and should be protected from contamination inside the health care setting itself. Water for drinking, cooking, personal hygiene, medical activities, cleaning and laundry must be safe for the purpose intended. 'Safe' water is water that meets national and/or WHO water quality guidelines, including zero *Escherichia coli* or thermotolerant coliform bacteria in any 100-millilitre sample of drinking water.

Source: Drinking water quality guidelines. 2017. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/254637>, accessed 23 August 2021).

WASH in health care facilities: The provision of water, sanitation, health care waste management, hygiene and environmental cleaning infrastructure and services across all parts of a facility.

Source: Global progress report on water, sanitation and hygiene in health care facilities: fundamentals first. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/337604>, accessed August 20 2021).

ANNEX 1.

Multimodal strategy guiding questions

Complete for each identified priority.

Multimodal strategy element	Guiding questions	Use the space below to list your response to the guiding questions	List all required actions to ensure your responses can be achieved. Incorporate these into your action plan
List all required actions to ensure your responses can be achieved. Incorporate these into your action plan	What resources (including budget), infrastructures or supplies are required to make an improvement in this priority area?		
Education and training – ‘teach it’	Who needs to be trained/educated to address the identified gap – how will this happen and who will undertake the training/education?		
Monitoring and feedback – ‘check it’	How will you know that an improvement has taken place – that is, what will be the key indicators for success?		
Communications and reminders – ‘sell it’	How will you publicize action on specific core components and promote improvement and best practice in this area?		
Safety climate and culture change – ‘live it’	How will you make and maintain this as a health care facility priority and engage senior leaders/managers/champions and opinion leaders over time?		

ANNEX 2.

Report template for the findings of the Infection Prevention and Control Assessment Framework – *Minimum Requirements*

Infection Prevention and Control Assessment Results and Recommendations

<Date>

<Author>

Summary

As part of <insert primary care facility name> efforts to strengthen infection prevention and control (IPC) a baseline assessment was undertaken using the WHO IPC Assessment Framework – *Minimum Requirements* (IPCAF-MR). The assessment was undertaken on <insert day/month/year>.

The assessment indicates that we <have or have not achieved the *minimum requirements* for IPC implementation at primary care level>. This assessment tool identifies our facility's performance against the identified *minimum requirements* for primary care of which all must be achieved as these are the minimum to be in place.

Introduction

Supported by the <IPC officer at the next administrative level>, <insert appropriate names> is undertaking a major effort to improve IPC. A critical part of this improvement effort is to map the progress of <insert facility name> against the WHO IPC guideline recommendations that describe eight core components of IPC programmes. The WHO IPCAF-MR is a diagnostic tool developed to assess existing IPC activities/resources and identify strengths and gaps based on the identified *minimum requirements* by level of care. It comprises eight sections reflecting the *minimum requirements* and addresses a total of 31 indicators relevant to primary care, framed as questions. The results of the IPCAF-MR identifies a facility's performance against these 31 indicators of which all must be achieved or in place at baseline.

Assessment

The IPCAF-MR was undertaken on <insert day/month/year>. The IPCAF-MR was led by <insert name of lead person undertaking the IPCAF-MR> and supported by <insert names and designations if applicable>.

Results

The overall score was <insert score>. This means that the facility has <'achieved' or 'not achieved'> the *minimum requirements*.

A breakdown of the sub-scores for each of the eight *minimum requirements* can be seen in the table below (insert scores for each minimum requirement).

Score

Minimum requirement	Sub-total
1. IPC programmes	
2. IPC guidelines	
3. IPC education and training	
4. HAI surveillance	
5. Multimodal strategies	
6. Monitoring and feedback	
7. Workload, staffing and bed occupancy	
8. Built environment, materials and equipment for IPC	
Final total	

Analysis of results

A preliminary analysis of the results highlights that <insert facility name> has strengths in the following areas: <list areas you consider to be strong in IPC based on results>. However, a number of gaps and weakness have been revealed and these are listed below <list what are considered to be gaps based on initial feedback>:

Recommendations

1. Based on an analysis of the results and discussions with key staff and stakeholders, a draft action plan has been developed to address identified priority gaps and weaknesses. The IPC officer at the next administrative level and IPC committee are recommended to support the implementation of the draft action plan and associated funding requirements (attach action plan to the report).
2. A repeat IPCAF-MR is recommended to take place in 12 months' time.

Signed: <insert signature> (on behalf of the IPC committee)

Dated: <insert date>

ANNEX 3.

Action plan templates

Example template 1

CORE COMPONENT: <INSERT NAME OF CORE COMPONENT>						
Priority gaps identified	Action required	Lead person	Start date	End date	Budget (if applicable)	Monitoring and evaluating implementation progress (include review/ completion dates)
<List all gaps identified from baseline assessment and prioritized for action>	<List the actions that are planned using information gathered as you work through the 5 steps of the implementation cycle>	<List the lead person or group driving the action plan>	<State when the action will start to be addressed>	<Estimate the deadline for action to be completed, including periodic review dates if applicable>	<Estimate the budget required to address the required actions>	<Describe the progress that has been made at each review date including decisions and actions taken, and the need for further actions to be taken to achieve completion>
Gap 1:						
Gap 2:						
Gap 3:						
Gap 4:						
<INSERT MORE ROWS AS REQUIRED>						

Example template 2

No.	Activity to be conducted	Objectives	Key performance indicator of the outcome	Target outcome	Target group	Budget/ expenditure	Duration of action	Responsible person(s)
<INSERT MORE ROWS AS REQUIRED>								

Example template 3

No.	Activity	Goal	Month												Budget	Responsible person(s)
			1	2	3	4	5	6	7	8	9	10	11	12		
<INSERT MORE ROWS AS REQUIRED>																

Example template 4

Name of facility: Unit: Date:/...../..... Unit head signature						
IPC area where gap is identified	Defective practices to be stopped (where appropriate)	Proposed solution(s)	Time for effecting solution(s)	Expected outcome	Person(s) responsible	Resources
<INSERT MORE ROWS AS REQUIRED>						

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